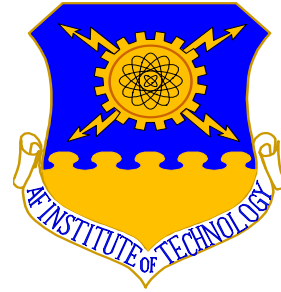


AFIT/EN/TR-03-03
TECHNICAL REPORT
February 2003



Air Force Institute of Technology

Research Report 2002

Period of Report: 1 October 2001 to 30 September 2002

Graduate School of Engineering and Management

**GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE, OHIO**

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AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

The Department of Defense, federal government, and non-government agencies supported the work reported herein.

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For additional information, please call or email:

(937) 255-3633

DSN 785-3633

afit.enrsta@afit.edu

or visit the AFIT website: www.afit.edu



Air Force Institute of Technology Research Report 2002 Foreword

Research is the cornerstone of dramatic advances in air and space defense technology. The Graduate School of Engineering and Management at the Air Force Institute of Technology (AFIT) continues to provide responsive, defense focused graduate education and research to enable us to remain the world's greatest air and space force. AFIT maintains partnerships with our Air Force's organizations and operational communities, Department of Defense (DoD) agencies and premier graduate education institutions to meet the challenges of high quality academic and research programs.

Research experience is an essential element of a quality technical education, providing graduate students the necessary environment to keep on the forefront of the ongoing revolution in warfighting. In addition to delivering long-term educational advantages, AFIT strives to ensure that the research program provides immediate benefits to our air and space forces. AFIT cooperates with commercial enterprises to ensure timely transfer of new technology to US industry whenever appropriate. AFIT welcomes new opportunities to engage in research projects that are of mutual interest to our customers, faculty, and students.

This Research Report is prepared annually to report on the significant contributions of this institution, to solicit continued involvement and support from Air Force laboratories and DoD agencies, and to encourage new sponsors to participate in AFIT's research program.

MICHAEL L. HEIL, Colonel, USAF
Commandant
Air Force Institute of Technology

ROBERT A. CALICO, JR.
Dean, Graduate School of Engineering
and Management



TABLE OF CONTENTS

Foreword.....	i
1. Introduction	1
1.1 Overview	1
1.2 The Graduate School Of Engineering And Management Research Collaboration.....	1
1.3 Research Assessment Questionnaire Results.....	4
2 Research Statistics	6
2.1 Research and Consulting Output Measures	6
2.2 Research and Consulting Sponsorship.....	7
2.3 Outside Funding for the Graduate School of Engineering And Management	9
2.4 Faculty Fellows.....	10
2.5 Professional Certification	11
3. Contributions to the Air Force.....	12
3.1 Doctoral Dissertations	12
3.2 Master's Theses By Program.....	14
3.2.1 Acquisition Management.....	14
3.2.2 Aeronautical Engineering	15
3.2.3 Applied Mathematics.....	16
3.2.4 Applied Physics	16
3.2.5 Astronautical Engineering	16
3.2.6 Computer Engineering.....	16
3.2.7 Computer Systems	17
3.2.8 Electrical Engineering.....	18
3.2.9 Electro-Optics.....	20
3.2.10 Engineering and Environmental Management.....	20
3.2.11 Information Resource Management.....	21
3.2.12 Logistics Management.....	22
3.2.13 Meteorology.....	23
3.2.14 Nuclear Engineering	24
3.2.15 Operations Research	25
3.2.16 Space Operations	26
3.2.17 Systems Engineering	26
3.3 Sponsors Of Master's Theses	27
3.4 Funded Research Projects.....	44
3.5 Refereed Journal Publications	53
3.6 Other Publications	63
3.7 Substantial Consultations.....	79
3.8 Presentations.....	86
3.9 Other Significant Professional Activities.....	108
3.10 Special Awards Or Special Recognition.....	115
3.10.1 Faculty	115
3.10.2 Students	117
Appendices	118
Appendix A Faculty Credentials	118
Appendix B Department Symbols and Locations.....	137
Appendix C Abbreviations for Organizations	138
Appendix D AFIT History.....	139
Appendix E Information for Obtaining a Copy of a Thesis.....	141

1. INTRODUCTION

1.1 OVERVIEW

This Research Report presents the FY02 research statistics and contributions of the Graduate School of Engineering and Management (EN) at AFIT. AFIT research interests and faculty expertise cover a broad spectrum of technical areas related to USAF needs, as reflected by the range of topics addressed in the faculty and student publications listed in this report. In nearly all cases, the research work reported herein is directly sponsored by one or more USAF or DoD agencies.

AFIT welcomes the opportunity to conduct research on additional topics of interest to the USAF and other DoD organizations, when adequate manpower and financial resources are available and/or provided by a sponsor. In addition, AFIT provides research collaboration and technology transfer benefits to the public through Cooperative Research and Development Agreements (CRADAs). Interested individuals may discuss ideas for new research collaborations, potential CRADAs, or research proposals with individual faculty using the contact information in Appendix A.

Additional information on the research programs at AFIT may also be found on the research web home page at <http://en.afit.edu/enr/>. The Office of Research and Consulting, Graduate School of Engineering and Management, points of contact are either Dr. Heidi R. Ries, PhD, Associate Dean for Research, (937) 255-3636, ext 4544 (DSN: 785-3636, ext 4544), email afit.enrsta@afit.edu or Mr. Gary M. Koenig, PE, Research Grants Engineer, (937) 255-3636, ext 4546 (DSN: 785-3636, ext 4546), email afit.enrsta@afit.edu

1.2 THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT RESEARCH COLLABORATION

AFIT offers Master's and doctoral programs in a variety of disciplines through six departments: the Department of Mathematics and Statistics (ENC), the Department of Electrical and Computer Engineering (ENG), the Department of Engineering Physics (ENP), the Department of Operational Sciences (ENS), the Department of Systems and Engineering Management (ENV), and the Department of Aeronautics and Astronautics (ENY). In all these disciplines, research is an integral component of graduate education, developing an individual student's skills and providing new knowledge of interest to many.

AFIT sends out an annual *Research Activities* mailings in an effort to involve sponsor organizations in research and education.

The Department of Mathematics and Statistics invites MS theses suggestions and topics for the following research specialties:

Applied Mathematics
Statistical Analysis
Nonlinear Optimization

Partial Differential Equations
Numerical Analysis

The Department of Electrical and Computer Engineering invites research topic suggestions and topics for the Electrical Engineering, Computer Engineering and Computer Science programs. The following research specialties are covered by the Department:

Advanced Imaging and Information Processing
Electromagnetics/Low Observables (Stealth)
Guidance, Navigation and Control
Micro Electromechanical Systems
Software and Information Engineering, Visualization, and Exploration

Communications/Networks
Evolutionary Algorithms
Information Systems, Security and Assurance
Parallel/Distributed Processing

The Department of Engineering Physics invites research topic proposals for the Engineering Physics, Nuclear Engineering, Electro-Optics (Electro-Optics shared between Electrical Engineering and Engineering Physics), Materials Science (Shared between Aeronautical Engineering and Engineering Physics), and Meteorology programs. The areas covered by these programs include:

Atmospheric Science
Electronic and Photonic Materials
Modeling and Simulation
Remote Sensing and Signature Analysis

Counterproliferation
Lasers and Electro-Optics
Nuclear Weapons and Effects
Space Weather

The Department of Operational Sciences invites research topics within the areas of Operations Research and Logistics Management. The following research specialties are covered by the Department:

Campaign Planning and Execution
Information Operations/Information Warfare
Operational Problems and Heuristic Modeling
Transportation and Strategic Mobility
Agent-based Modeling

Decision and Risk Analysis
Operational Modeling and Simulation
Stochastic Systems Analysis
Supply Chain Management
Engineering Design Optimization

The Department of Systems and Engineering Management is seeking research topic proposals for the Engineering and Environmental Management, Acquisition Management, and Information Resource/Systems Management programs. The following research specialties are covered by the Department:

Applied Environmental Sciences
Cost Analysis
Human Resource Management
Information Resource Management
Systems Management

Contract Management
Environmental Systems Analysis
and Management
Quantitative Decision Making
Strategic Purchasing

The Department of Aeronautics and Astronautics invites research collaboration proposals for the Aeronautical, Astronautical and Systems Engineering programs. The Department covers the following research specialties:

Computational Fluid Dynamics
Materials and Structural Analysis
Systems Engineering

Dynamics and Control
Propulsion Systems
Aerodynamics

If you would like to collaborate with AFIT on research, here are some ideas:

- Look through the credentials and interests of the AFIT faculty members at Appendix A. Match your areas of interest with the research interests of one or more faculty.
- Read through the list of recent graduates' theses titles in this report. You may find one or more AFIT Faculty Advisors who have dealt with a topic in your interest area.
- Contact a faculty member to discuss your idea for a research collaboration. A topic that has strong faculty endorsement and support is much more likely to be chosen by the students than one that lacks faculty advocacy. Topics that fall outside the collective areas of faculty competence cannot be approved, even if chosen. For maximum effectiveness all around, please talk to AFIT faculty before you submit a research suggestion. The faculty member's phone number is found in the Appendix A of this report.
- After talking to an AFIT faculty member, prepare and send your research collaboration proposal as soon as possible. Use the following sample proposal format on the following page, or make up your own. Send your proposal to the faculty member, to the department, or to AFIT/ENR, Bldg 640, 2950 P St., Wright-Patterson AFB OH 45433-7765; or email us at afit.enrsta@afit.edu.

***** S A M P L E *****

PROPOSED RESEARCH TOPIC FORMAT

1. **RESEARCH TOPIC:** Secure Optical Fiber Links Based on Chaotic Cryptography

2. **INDIVIDUAL SPONSOR:** Dr. Mary Jones, AFRL/XN (DSN: 123-4567)
1234 Casimir Creek Road
WPAFB OH 45433-5632

3. **AFIT FACULTY CONTACTED:** Lt Col Tom P. Smith, AFIT/ENG

4. **BACKGROUND/PROBLEM:** The output emission power of semiconductor laser diodes is extremely stable under normal operating conditions for standard device designs. It is, however, possible to design and operate devices in unstable, chaotic regimes. Secure optical communication systems based on standard encryption techniques are essential to current military operations. When combined with new solid-state chaotic light and detection sources, the ability to crack the codes of intercepted communications is, for all practical purposes zero. Arrays of low-cost, high-efficiency, robust microlaser diodes are ideal for this secure communication application.

5. **OBJECTIVE/APPROACH:**

- a. Develop numerical models of chaotic microlasers
- b. Develop time-based encryption algorithms
- c. Design and fabricate arrays of chaotic microlasers
- d. Characterize the device and system performance

6. **RESOURCE REQUIREMENTS:**

- a. Minimum computational requirement: Sun Microsystems Sparc2 or equivalent
- b. Clean room for device fabrication
- c. Photonics measurement equipment for device and system characterization

7. **REFERENCES:** None.

***** S A M P L E *****

1.3 RESEARCH ASSESSMENT QUESTIONNAIRE RESULTS

An AFIT Research Assessment Questionnaire, shown on the following page, was sent to each sponsor of a Master's thesis and doctoral dissertation project during FY 2002 to determine the project's contribution, significance and cost avoidance. Detailed results of the questions asked are shown in Table 1.1. The data in this table are based on 67 questionnaires returned out of the 214 questionnaires mailed.

Table 1.1: Sponsor Assessment of AFIT Research

QUESTION	EN
Did this research contribute to a current Air Force/DoD project? (Yes answers)	100%
The thesis work was: Highly significant Significant Slightly significant Not significant	36% 48% 16% 0%
Average man-years of effort saved by the sponsors.	1
Average cost avoided per thesis/dissertation by the sponsors.	\$90,642
Total cost avoided for all theses and dissertations sponsored.	\$19,397,388
Rank of respondents Colonel (GM-15) Lt Col (GM-14) Major (GM-13) Captain (GS-12) Other	12% 45% 27% 8% 8%



RESEARCH ASSESSMENT QUESTIONNAIRE

TO:

Thank you for sponsoring the AFIT thesis or dissertation listed below. AFIT is working hard to keep its research focused on defense technologies of interest to the Air Force and to the nation.

Title:

Student Author:

Designator:

Faculty Advisor:

Please help us determine the value and contribution of this research to your organization's mission by answering the questions below:

1. Did this research contribute to a current task or goal of interest to your organization? Y / N
2. Would you have completed this work if AFIT had not done it? Y / N
3. Regardless of your answers above, how would you rate this work?
Highly significant
Significant
Slightly significant
No significance
4. If AFIT had not done this work, please estimate what it would have cost your organization to perform it, either by using in-house resources or by contract. *Man-Years ____ \$ _____
**Please note that typically an MS thesis requires 0.5MY of the student's time and one month of the faculty advisor's time. For a PhD dissertation the numbers are 2MY for the student and 4 months for the advisor.*
5. Would you like to make any remarks? (These will be shared with the academic department and the faculty chairperson.) (If necessary, please continue on reverse side.)

You may mail this to AFIT/ENR, 2950 P Street, Wright-Patterson AFB OH 45433-7765, or fax it to (937) 656-7302 (DSN: 986-7302), or just e-mail your answers (only) to 1 to 5 to afit.enrsta@afit.edu . If you use e-mail, please include the designator above so that we might identify the project.

Thank you.

Name of Evaluator

Office Symbol

Grade/Rank of Evaluator

2 RESEARCH STATISTICS

2.1 RESEARCH AND CONSULTING OUTPUT MEASURES

Technology sharing and transfer are critical to the timely development of new operational capabilities. There are measurable indicators of AFIT's contribution to the engineering and scientific community and AFIT's success in staying well informed of technical possibilities and scientific opportunities. They include the number and quality of technical publications accepted by the editors of journals, the number of presentations accepted for regional, national and international conferences, the number of research projects conducted, the number of consultations performed for Air Force and DoD customers, and finally the number of student MS theses and PhD dissertations that are completed and submitted to the Defense Technical Information Center. For FY02, these output measures are shown in Table 2.1 and in Figure 2.1.

Table 2.1: Faculty Research and Consulting Output

Graduate School Department	Number of Faculty	Refereed Publications	Other Publications	Presentations	Funded Research Projects	Substantial Consultations	Master's Theses Advised	Doctoral Dissertations Advised
Math (ENC)	11	9	12	26	9	0	5	0
Elec (ENG)	22	23	98	105	38	54	51	6
Phys (ENP)	18	22	15	67	32	9	23	4
Op Sc (ENS)	17	31	7	39	19	6	36	6
Sys & Eng Man (ENV)	15	26	11	27	10	7	40	0
Aero (ENY)	16	19	40	41	35	17	22	6
Total	99	130	183	305	143	93	177	22

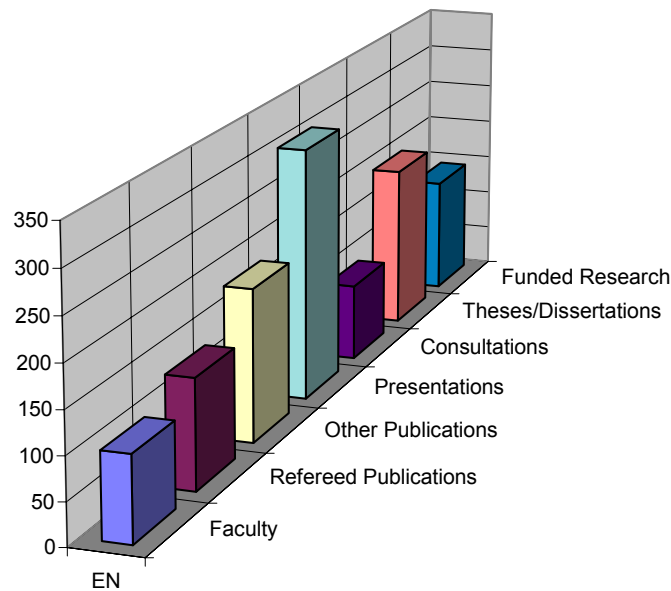


Figure 2.1: Research Output Measures

2.2 RESEARCH AND CONSULTING SPONSORSHIP

As members of an Air Force institution, the faculty of the AFIT focus their research on current problems as well as future systems of the Air Force and other DoD organizations. Evidence of this focus is that 95% of all theses and dissertations listed in Table 1.2 are externally sponsored by Air Force, DoD and Government agencies. In addition, most of the research projects and consultations are carried out for Air Force and DoD units. The data are summarized in Table 2.2 and Figure 2.2.

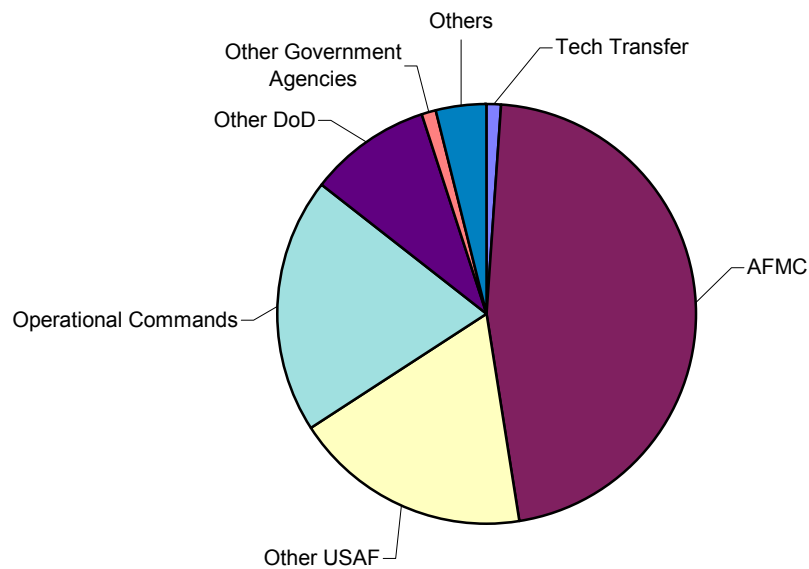


Figure 2.2: Sponsors of AFIT Theses and Dissertations

Table 2.2: Sponsorship of AFIT Research

SPONSOR ORGANIZATION	Master's Theses	PhD Dissertations	Funded Research	Substantial Consultations
AIR FORCE	17		11	8
AIR COMBAT COMMAND	3	1	1	
Air Force Information Warfare Center	1			
UAV Battlelab	1		1	
AIR EDUCATION AND TRAINING COMMAND	1		2	
Air Force Institute of Technology	27			6
AIR FORCE MATERIEL COMMAND	9			8
Aeronautical Systems Center	7			4
Air Force Research Laboratory	48	11	36	25
Air Force Research Lab/Air Force Office of Scientific Research	9	7	36	5
Space and Missile Systems Center	3		2	2
Air Force Flight Test Center	2			
AIR FORCE SPACE COMMAND	1			
AIR FORCE SPECIAL OPERATIONS COMMAND	1			
AIR MOBILITY COMMAND	2			
PACIFIC AIR FORCES	2			
USAF FIELD OPERATING AGENCIES				
Air Force Center for Environmental Excellence	2		1	1
Air Force Civil Engineer Support Agency	3			
Air Force Combat Climatology Center	2			
Air Force Technical Applications Center	2	1	1	
Air Force Weather Agency	6			
USAF DIRECT REPORTING UNIT				
Air Force Communication Agency	2		1	3
Air Force Operational Test and Evaluation Center	2			
ARMY	1			2
DEPARTMENT OF DEFENSE	4	1	6	5
Defense Advanced Research Projects Agency	2			2
Defense Threat Reduction Agency	4	1	3	
Office of the Secretary of Defense	1		1	
USSTRATCOM	1			
NATIONAL SECURITY AGENCY	3	1	4	4
DEPARTMENT OF ENERGY	1		1	
DEPARTMENT OF HOMELAND SECURITY				
United States Coast Guard	1			
NATIONAL AIR AND SPACE ADMINISTRATION	1		1	2
DAYTON AREA GRADUATE STUDIES INSTITUTE	1	1	12	1
NORTH ATLANTIC TREATY ORGANIZATION	4			1
ARGENTINE AIR FORCE MATERIEL COMMAND	1			
KOREAN AIR FORCE	1			
TURKISH AIR FORCE	1			
OTHERS	2		1	14
TOTALS	182*	24*	121	93

*Multiple Sponsors

2.3 OUTSIDE FUNDING FOR THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT

Many of the Graduate School of Engineering and Management's theses and research projects completed under faculty supervision (sponsored or unsponsored) are funded in part by other Air Force, DoD and government units and agencies. Often this funding results from collaboration between faculty and thesis sponsors and occurs when the research project can be leveraged by the purchase of equipment or services not otherwise available. Table 2.3 and Figure 2.3 summarize outside funding for FY02.

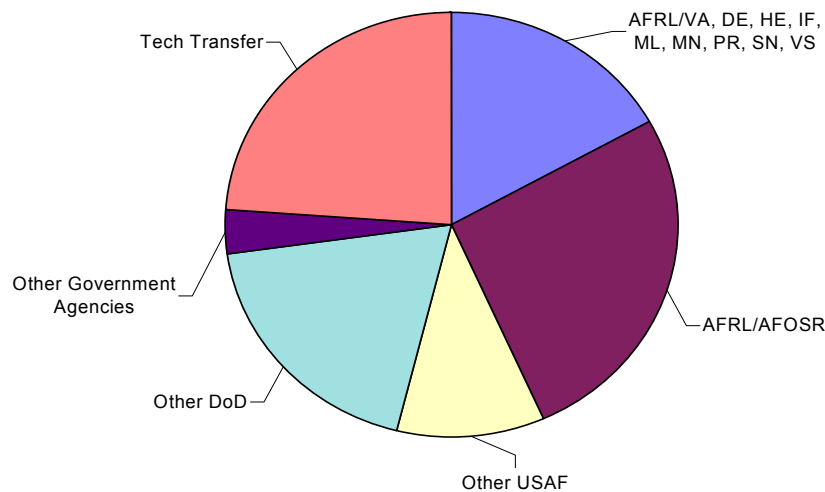
Table 2.3: Sponsoring Organizations for Funded Research

Sponsoring Organization	Funded Projects	Dollars (\$)*
AFRL/AFOSR	37	\$ 1,329,340
AFRL/VA, DE, HE, IF, ML, MN, PR, SN, and VS	35	\$ 853,734
Other USAF	19	\$ 520,733
Other DOD	15	\$ 960,397
Other Government Agencies	3	\$ 163,307
Tech Transfer (CRADAs)	12	\$ 1,201,511
**TOTAL	121	\$ 5,029,022*

* Includes carry over funding from FY01 of \$875,545.

**DoD regulations limit AFIT's charges to DoD organizations. Accounting for these nonchargeable items, the cost of our research program at a comparable civilian university would have been approximately \$9.2 million.

Figure 2.3: FY02 Funded Research



2.4 FACULTY FELLOWS

Bridgman, Charles J., Professor Emeritus of Nuclear Engineering, Department of Engineering Physics, Fellow of the American Nuclear Society.

D'Azzo, John J., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Franke, Milton E., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers.

Houpis, Constantine H., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Mall, Shankar, Air Force Research Laboratory, Professor, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers.

Maybeck, Peter S., Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Pachter, Meir, Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

Palazotto, Anthony N., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Civil Engineers.

Torvik, Peter J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Department of Aeronautics and Astronautics, Fellow of the American Institute of Aeronautics and Astronautics, Fellow of American Society of Mechanical Engineers.

2.5 PROFESSIONAL CERTIFICATION

Anthenien, Ralph A., Professional Engineer, State of Ohio, E-67057

Brady, Stephan P., Certified Professional Logistician, Society of Logistics Engineers

Brothers, Heidi S., P.E., Professional Engineer, State of Oregon and California, C44500

Chrissis, James W., Professional Engineer, State of Florida, 0037247

D'Azzo, John J., Professional Engineer, State of Ohio, E-12550

England, Ellen, National Certification, Board of Certified Safety Professionals, Certified Safety Professional, #15179

England, Ellen, National Certification, American Board of Industrial Hygiene, Certified Industrial Hygienist, #6374

Goltz, Mark N., P.E., Professional Engineer, State of Minnesota, 13978

Goltz, Mark N., DEE, Diplomate Environmental Engineer, American Academy of Environmental Engineers, Hazardous Waste Management Specialty Certification

Greiner, Michael A., Certified Cost Estimator/Analyst, Society of Cost Estimating and Analysis

Gunsch, Gregg H., Professional Engineer, State of Ohio, E-56828

Heil, Michael L., Professional Engineer, State of Colorado, 167712

Houpis, Constantine H., Professional Engineer, State of Ohio, E-19084

Jodoin, Vincent J., Professional Engineer, State of Ohio, E-57166

LaPuma, Peter T., Professional Engineer, State of Ohio, E-66529

Palazotto, Anthony N., Professional Engineer, State of Ohio, E-39937

Perram, Glen P., Professional Engineer, State of Ohio, E-060534

Quinn, Dennis W., Professional Engineer, State of Ohio, E-056873

Reeder, Mark F., Professional Engineer, State of Ohio, E-63844

Spenny, Curtis H., Professional Engineer, State of Ohio, E-038759

3. CONTRIBUTIONS TO THE AIR FORCE

3.1 DOCTORAL DISSERTATIONS

*Multiple Sponsors

Anderson, Jon M. *Nonlinear Suppression of Range Ambiguity in Pulse Doppler Radar*. AFIT/DS/ENG/01-05. Faculty Advisor: Dr. Michael Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SN.

Anttonen, John S. *Techniques for Reduced Order Modeling of Aeroelastic Structures with Deforming Grids*. AFIT/DS/ENY/01-01. Faculty Advisor: Dr. Paul King, DSN: 785-3636, ext 4628. Sponsor: AFRL/VA.

*Bassham, Christopher B. *Automatic Target Recognition Classification System Evaluation Methodology*. AFIT/DS/ENS/02-03. Faculty Advisor: Dr. Kenneth W. Bauer, Jr., DSN: 785-6565, ext 4328. Sponsor: AFRL/Sensors and ACC/DRSA.

Brower, Ronald W. *Congruent Weak Conformance*. AFIT/DS/ENG/02-04. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/IF.

Combs, Todd E. *A Combined Adaptive Tabu Search and Set Partitioning Approach for the Crew Scheduling Problem with an Air Tanker Crew Application*. AFIT/DS/ENS/02-04. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: AFOSR/NM.

Crino, John R. *A Group Theoretic Tabu Search Methodology for Solving the Theater Distribution Vehicle Routing and Scheduling Problem*. AFIT/DS/ENS/02-02. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: AFOSR/NM.

Erickson, John W. *Multiple Model Adaptive Estimation (MMAE) Applied to the Ultra-Tightly Couple IMU/GPS Methodology*. AFIT/DS/ENG/-01-01. Faculty Advisor: Dr. Peter S. Maybeck, DSN: 785-3636, ext 4639. Sponsor: AFRL/MN.

*Fellows, James A. *Electrical Activation Studies of ION Implanted Gallium Nitride*. AFIT/DS/ENP/02-2. Faculty Advisor: Dr. Yung Kee Yeo, DSN: 785-3636, ext 4532. Sponsor: AFOSR/NE and AFRL/MLPS.

Fredley, Michael L. *A Decomposition Approach for the Multi-Modal, Resource-Constrained, Multi-Project Scheduling Problem with Generalized Precedence and Expediting Resources*. AFIT/DS/ENS/01-02. Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325. Sponsor: AFOSR.

Gerts, David W. *Efficient and Accurate Computation of Non-Negative Anisotropic Group Scattering Cross Sections for Discrete Ordinates and Monte Carlo Radiation Transport*. AFIT/DS/ENP/02-4. Faculty Advisor: Dr. Kirk A. Mathews, DSN: 785-3636, ext 4508. Sponsor: AFTAC.

Hale, Todd B. *Airborne Radar Interference Suppression Using Adaptive Three-Dimensional Techniques*. AFIT/DS/ENG/02-02. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNRT.

Hebert, Jeffrey M. *Air Vehicle Path Planning*. AFIT/DS/ENG/01-04. Faculty Advisor: Dr. Meir Pachter, DSN: 785-3636 ext 4593. Sponsor: AFRL/VACA.

Klimack, William K. *Robustness of Multiple Objective Decision Analysis Preference Functions*. AFIT/DS/ENS/02-01. Faculty Advisors: Dr. Kenneth W. Bauer, Jr., and Dr. Jack Kloeber, DSN: 785-6565, ext 4328. Sponsor: US Military Academy.

Laird, David J. *The Investigation of Hypervelocity Gouging*. AFIT/DS/ENY/02-01. Faculty Advisor: Dr. Anthony N. Palazotto, DSN: 785-3636, ext 4599. Sponsor: AFOSR/NM.

Lucia, David J. *Reduced Order Modeling for High Speed Flows with Moving Shocks*. AFIT/DS/ENY/01-03. Faculty Advisor: Dr. Paul King, DSN: 785-3636, ext 4628. Sponsor: AFRL/VASD.

Maple, Raymond C., *Adaptive Harmonic Balance Method for Unsteady, Nonlinear, One-Dimensional Periodic Flows*. AFIT/DS/ENY/02-2. Faculty Advisor: Dr. Paul I. King, DSN: 785-3636, ext 4628. Sponsor: DAGSI.

Parker, Timothy W. *Mean Performance Optimization of an Orbiting Distributed Aperture by Warped Aperture Image Plane Comparisons*. AFIT/DS/ENY/02-3. Faculty Advisor: Lt Col David R. Jacques, DSN: 785-7777, ext 3287. Sponsor: AFRL/VACA.

Renfro, Robert S. *Modeling and Analysis of Social Networks*. AFIT/DS/ENS/01-03. Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325. Sponsor: NSA/NAIC.

Rogers, James W. *Modeling Axisymmetric Optical Precision Piezoelectric Membranes*. AFIT/DS/ENY/01-02. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-3636, ext 4317. Sponsor: AFOS/NA.

Russell, Timothy H. *Laser Intensity Scaling Through Stimulated Scattering in Optical Fibers*. AFIT/DS/ENP/02-03. Faculty Advisor: Dr. Won B. Roh, DSN: 785-3636, ext 4509. Sponsor: AFOSR/NE.

Starman, Lavern A. *Characterization of Residual Stress in Microelectromechanical Systems (MEMS) Devices Using Raman Spectroscopy*. AFIT/DS/ENG/02-01. Faculty Advisor: Lt Col James Lott, DSN: 785-3636, ext 4527. Sponsor: AFRL/MLMR.

Suriano, Mark A. *Short and Independent Characteristic Methods for Discrete Ordinates Radiation Transport with 2D and 3D Regular Cartesian Meshes*. AFIT/DS/ENP/02-1. Faculty Advisor: Dr. Kirk A. Mathews, DSN: 785-3636, ext 4508. Sponsor: DTRA/CSNP-LANL.

3.2 MASTER'S THESES BY PROGRAM

* Multiple Sponsors

3.2.1 ACQUISITION MANAGEMENT

Boyd, Aaron J. *Source Selection Support*. AFIT/GAQ/ENV/02M-01. Faculty Advisor: Maj Timothy S. Reed, DSN: 785-3636, ext 4799. Sponsor: SAF/AQ.

Brown, Thomas W. *Forecasting Research and Development Program Budgets Using the Weibull Model*. AFIT/GAQ/ENC/02M-01. Faculty Advisor: Maj Edward D. White III. Sponsor: OSD PA&E (RA).

Chelf, Kurt A. *Beyond A-76: How to Achieve the Goals without the Pain*. AFIT/GAQ/ENV/02M-02. Faculty Advisor: Maj Timothy S. Reed, DSN: 785-3636, ext 4799. Sponsor: AFIT/EN.

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- Bergren, Scott E. *Fabrication and Cold-Flow Testing of Subscale Space-Based Laser Geometry*. AFIT/GAE/ENY/02-3. Faculty Advisor: Dr. Milton E. Franke, DSN: 785-3636, ext 4720. Sponsor: SMC/TL.
- Dunkel, Robert E. *Investigation of Cooperative Behavior in Autonomous Wide Area Search Munitions*. AFIT/GAE/ENY/02-4. Faculty Advisor: Lt Col David R. Jacques, DSN: 785-7777, ext 3287. Sponsor: AFRL/MNGN.
- Ellering, Christine P. *The Combined Effects of Freestream Turbulence, Pressure Gradients, and Surface Roughness on Turbine Aerodynamics*. AFIT/GAE/ENY/02-5. Faculty Advisor: Maj Jeffrey P. Bons, DSN: 785-3636, ext 4327. Sponsor: DOE/SCIES.
- Hamilton, Christopher E. *Design Study of Triggered Isomer Heat Exchanger-Combustion Hybrid Jet Engine for High Altitude Flight*. AFIT/GAE/ENY/02-6. Faculty Advisor: Dr. Paul I. King, DSN: 785-3636, ext 4628 and Dr. M. E. Franke, DSN: 785-3636, ext 4720. Sponsor: AFRL/DEBE.
- Johnson, Donald A. *Suppression of Pilot-Induced Oscillation (PIO)*. AFIT/GAE/ENY/02-01. Faculty Advisor: Dr. Bradley S. Liebst, DSN: 785-3636, ext 4636. Sponsor: USAF Test Pilot School.
- Lofthouse, Andrew J. *Computational Aerodynamic Analysis of the Flow Field about a Hypervelocity Test Sled*. AFIT/GAE/ENY/02-07. Faculty Advisor: Lt Col Montgomery C. Hughson, DSN: 785-3636, ext 4597. Sponsor: AFOSR/NM.
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3.2.3 APPLIED MATHEMATICS

*Campbell, Matthew L. *Cell Modeling*. AFIT/GAM/ENC/02M-01. Faculty Advisor: Dr. Dennis W. Quinn, DSN: 785-6565, ext 4522. Sponsor: AFOSR and DAGSI.

Goldberg, Jacob B. *Finite Extinction Time for Non-Linear Absorption-Diffusion Equations*. AFIT/GAM/ENC/02S-02. Faculty Advisor: Dr. Alan V. Lair, DSN: 785-3636, ext 4519. Sponsor: AFIT/EN.

Olson, Rebecca A. *Comparing Clustering Algorithms for Use with Genomic and Proteomic Data*. AFIT/GAM/ENC/02S-1. Faculty Advisor: Dr. Dennis W. Quinn, DSN: 785-3636, ext 4522. Sponsor: AFOSR.

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Labowski, Kristofer S. *Computational Modeling of a Time-Independent, Heterogeneous Reactor Core Using Simplified Discrete Ordinate Neutron Transport Techniques*. AFIT/GAP/ENP/01S-01. Faculty Advisor: LTC James C. Petrosky, DSN: 785-3636, ext 4600. Sponsor: AFIT/EN.

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Ballah, Jason T. *Integrated Manet Mutual Authentication System (IMMAS)*. AFIT/GCS/ENG/02M-01. Faculty Advisor: Maj Rusty O. Baldwin, DSN: 785-3636, ext 4612. Sponsor: AFIWC/IO (ACC).

Bebo, John L. *Using Relational Schemata in a Computer Immune System to Detect Multiple-Packet Network Intrusions*. AFIT/GCS/ENG/02M-02. Faculty Advisor: Dr. Gregg Gunsch, DSN: 785- 6565, ext. 4281. Sponsor: AFRL/IFGB.

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Trias, Eric D. *An Extensible Information Retrieval Methodology for Reuse and Integration of Combat Simulation Database Models*. AFIT/GCS/ENG/02M-08. Faculty Advisor: Maj Karl S. Mathias, DSN: 785-6565, ext 4280. Sponsor: AFRL/SNZW.

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Allnut, Richard A. *Development and Characterization of an Emergency Communications System Using Newar Vertical Incident Skywave Antennas*. AFIT/GE/ENG/02M-02. Faculty Advisor: Dr. Andrew J. Terzuoli, Jr., DSN: 785-3636, ext 4717. Sponsor: AFRL/HEH.

Andel, Todd R. *Design, Simulation, and Evaluation of Computer Network Communications for the Air Force's Fleet of VC-25 Aircraft, Air Force One*. AFIT/GE/ENG/02-33. Faculty Advisor: Dr. Richard A. Raines, DSN: 785-3636, ext 4715. Sponsor: Presidential Airlift Squadron, PAS/DOR.

Calikoglu, Baris. *Evaluation and Analysis of Array Antennas for Passive Coherent Location Systems*. AFIT/GE/ENG/02M-02. Faculty Advisor: Dr. Andrew J. Terzuoli, Jr., DSN: 785-3636, ext 4717. Sponsor: NATO C3 Agency.

Coker, Jamie C. *Design of a High-Fidelity MATLAB Simulator for an Ultratightly Coupled GPS/INS Receiver Based on a Federated Filter Approach*. AFIT/GE/ENG/02M-03. Faculty Advisor: Lt Col Mikel M. Miller, DSN: 785-7777, ext 3295. Sponsor: AFRL/SNRP.

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Garay, David A. *Estimation of Atmospheric Precipitable Water Using the Global Positioning System*. AFIT/GE/ENG/02M-07. Faculty Advisor: Maj John F. Raquet, DSN: 785-3636, ext 4580. Sponsor: Air Force Weather Agency (AFWA) Tech. Trans. Team.

Goodman, Scott A. *Sensitivity Analysis of a Flight Line Radar Cross Section Measurement*. AFIT/GE/ENG/02M-08. Faculty Advisor: Maj William D. Wood, DSN: 785-3636, ext 4639. Sponsor: AFRL/SNS.

Guner, Abdulkadir. *Ambiguity Function Analysis and Direct-Path Signal Filtering of the Digital Audio Broadcast (DAB) Waveform for Passive Coherent Location (PCL)*. AFIT/GE/ENG/02M-09. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: NATO C3 Agency.

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Istanbuluoglu, Muhittin. *Performance Tradeoff Study of a GPS-Aided INS for a Rocket Trajectory*. AFIT/GE/ENG/02M-11. Faculty Advisor: Dr. Peter Maybeck, DSN: 785-3636, ext. 4581. Sponsor: AFRL/SNAR.

Kim, Jesung. *Post-Processing of Low Dose Mammography Images*. AFIT/GE/ENG/02-35. Faculty Advisor: Dr. Steven Gustafson, DSN 785-3636, ext 4598. Sponsor: 74 MDG/SGSXN.

- Koper, Eric M. *Antenna Coupling Minimization for the VC-25A Using Genetic Algorithms, Local Search, and Cylinder Approximations*. AFIT/GE/ENG/02M-12. Faculty Advisor: Maj William D. Wood, DSN: 785-3636, ext 4639. Sponsor: AFRL/SNR.
- Lee, Jae Soong. *Multicast Routing Algorithms and Failure Analyses for Low Earth Orbit Satellite Communication Networks*. AFIT/GE/ENG/02-34. Faculty Advisor: Dr. Richard A. Raines, DSN: 785-3636, ext 4715. Sponsor: AFIT/EN.
- Lee, Marion J. *Wavelet Domain Communication System (WDCS): Packet-Based Wavelet Spectral Estimation and M-Ary Signaling*. AFIT/GE/ENG/02M-14. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNRW.
- MacNicol, John H. *A Study of Satellite Navigation, Dilution of Precision, and Positioning Techniques for Use On and Around the Moon*. AFIT/GE/ENG/02M-15. Faculty Advisor: Maj John Raquet, DSN: 785-3636, ext. 4580. Sponsor: NASA Glenn Research Center.
- Ozcetin, Ahmet. *Analysis of Sophisticated Direction of Arrival (DOA) Estimation Techniques in PCL Systems*. AFIT/GE/ENG/02M-18. Faculty Advisor: Dr. Andrew J. Terzuoli, Jr., DSN: 785-3636, ext. 4717. Sponsor: NATO C3 Agency.
- Papaphotis, Matthew J. *An Analysis of Mutually Dispersive Brown Symbols for Non-Linear Ambiguity Suppression*. AFIT/GE/ENG/02M-19. Faculty Advisor: Maj Roger L. Claypoole, Jr., DSN: 785-3636, ext 4625. Sponsor: AFRL/SN.
- Polat, Murat. *INS Aiding by Tracking an Unknown Ground Object*. AFIT/GE/ENG/02M-20. Faculty Advisor: Dr. Meir Pachter, DSN: 785-3636, ext 4593. Sponsor: AFRL/SNAT.
- Raley, Jeremy A. *Fabrication Techniques for III-V Micro-Opto-Electro-Mechanical Systems*. AFIT/GE/ENG/02M-21. Faculty Advisor: Lt Col James A. Lott, DSN: 785-3636, ext 4576. Sponsor: AFRL/SNDD.
- Rapallo, James R. *A Direct Sequence Code Division Multiple Access Local Area Network Model*. AFIT/GE/ENG/02M-22. Faculty Advisor: Maj Rusty O. Baldwin, DSN: 785-3636, ext 4612. Sponsor: AFCA/ITAL.
- Say, Kerim. *Statistical Error Analysis of a DOA Estimator for a PCI System Using the CRAMER-RAO Bound Theorem*. AFIT/GE/ENG/02M-23. Faculty Advisor: Maj Roger L. Claypoole, Jr., DSN: 785-3636, ext 4625. Sponsor: NATO C3 Agency.
- Sitler, Kevin L. *Exploitation of Advanced Waveform Coding Techniques to Enhance Stepped-Frequency Radar Performance*. AFIT/GE/ENG/02M-24. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNAS.
- Tellez, Jason A. *High Energy Laser Pointing Through Extended Turbulence*. AFIT/GE/ENG/02-31. Faculty Advisor: Maj Eric P. Magee, DSN 785-2024. Sponsor: AFRL/DEBA.
- Torres, Michael L. *Failure Detection and Flight Control Redistribution Using Multiple Model Adaptive Estimation with Filter Spawning*. AFIT/GE/ENG/02M-25. Faculty Advisor: Dr. Peter S. Maybeck, DSN: 785-3636, ext 4639. Sponsor: ASC/GRA, AMC-III, Bldg 558.
- Trapp, Bethann. *Evaluation and Mission-Specific Optimization of Satellite Packet Telemetry Protocol for Use on DoD Flight Test Ranges*. AFIT/GE/ENG/02M-26. Faculty Advisor: Dr. Gregg H. Gunsch, DSN: 785-6565, ext 4281. Sponsor: ARTM Joint Program Office.

Tredway, Brian R. *Using the GPS to Collect Trajectory Data for Ejection Seat Design, Validation, and Testing*. AFIT/GE/ENG/02M-27. Faculty Advisor: Lt Col Mikel M. Miller, DSN: 785-7777, ext 3295. Sponsor: AFRL/HEPA.

Woodcock, Anthony R. *Microdot – A Four-Bit Microcontroller Designed for Distributed Low-End Computing in Satellites*. AFIT/GE/ENG/02M-28. Faculty Advisor: Lt Col James Lott, DSN: 785-3636, ext 4576. Sponsor: AFRL/VSSE.

Zavala, Ever O. *Characterization of a Low Dispersion Sensor for Direction Finding Applications*. AFIT/GE/ENG/02M-29. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNRR.

Zetterlind, Virgil E. *Distributed Beacon Requirements for Branch Point Tolerant Laser Beam Compensation in Extended Atmospheric Turbulence*. AFIT/GE/ENG/02M-30. Faculty Advisor: Maj Eric P. Magee, DSN: 785-3636, ext 4614. Sponsor: AFRL/DEBA.

3.2.9 ELECTRO-OPTICS

Harm, Michael D. *Development of a Tm:Ho:YLF-Laser-Pumped Orientation-Patterned Gallium Arsenide Optical Parametric Oscillator*. AFIT/GEO/ENP/02-01. Faculty Advisor: Dr. Won B. Roh, DSN: 785-3636, ext 4509. Sponsor: AFRL/SNJT.

Harvey, Michael C. *Design and Fabrication of Micro-Electro-Mechanical Structures for Tunable Micro-Optical Devices*. AFIT/GEO/ENG/02M-01. Faculty Advisor: Lt Col James A. Lott, DSN: 785-3636, ext 4576. Sponsor: AFRL/SNDD.

3.2.10 ENGINEERING AND ENVIRONMENTAL MANAGEMENT

Bugg, Bradley M. *An Anion Characterization of a Constructed Wetland Used for Chlorinated Ethene Remediation*. AFIT/GEE/ENV/02M-01. Faculty Advisor: Dr. Michael L. Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/MLQ.

Campbell, Jason S. *A Comparison of Modeling Approaches in Simulating Chlorinated Ethene Removal in a Constructed Wetland by a Microbial Consortia*. AFIT/GEE/ENV/02M-02. Faculty Advisor: Dr. Michael Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/MLQ.

*Sharp, Christopher L. *An Evaluation of Facility Maintenance and Repair Strategies of Select Companies*. AFIT/GEE/ENV/02-19. Faculty Advisor: Lt Col Heidi Brothers, DSN: 785-3636, ext 4800. Sponsor: HQ AF/ILEPA and HQ AFMC/CE.

Entingh, Andrew C. *Groundwater Flow through a Constructed Treatment Wetland*. AFIT/GEE/ENV/02M-03. Faculty Advisor: Dr. Michael L. Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/MLQ.

*Jensen, Shawn J. *An Evaluation of GeoBest Contingency Beddown Planning Software Using the Technology Acceptance Model*. AFIT/GEE/ENV/02M-04. Faculty Advisor: Lt Col Heidi S. Brothers, DSN: 785-3636, ext 4800. Sponsor: Air Force Civil Engineer, HQ AFCESA/CEX and Det 1 823 RHS/CC.

Jurk, David M. *Decision Analysis with Value Focused Thinking as a Methodology to Select Force Protection Initiatives for Evaluation*. AFIT/GEE/ENV/02M-05. Faculty Advisor: Lt Col Al Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: USAF FPB/CC.

Katzer, Dee J. *Decision Analysis with Value-Focused Thinking as a Methodology in Structuring the Civil Engineer Operations Flight*. AFIT/GEE/ENV/02M-06. Faculty Advisor: Lt Col Al Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: AFIT/EN.

- Opperman, Bryan C. *Determination of Chlorinated Solvent Contamination in an Upward Flow Constructed Wetland*. AFIT/GEE/ENV/02M-07. Faculty Advisor: Dr. Michael L. Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/MLQ.
- Parr, Jeffrey C. *Application of Horizontal Flow Treatment Wells for In Situ Treatment of Perchlorate Contaminated Groundwater*. AFIT/GEE/ENV/02M-08. Faculty Advisor: Dr. Mark N. Goltz, DSN: 785-3636, ext 4638. Sponsor: AFCEE/ERC.
- Phillips, Edward P. *Evaluating Air Force Civil Engineers' Current Automated Information Systems*. AFIT/GEE/ENV/02M-09. Faculty Advisor: Lt Col Al E. Thal, DSN: 785-3636, ext 4591. Sponsor: AFCEA/CEO.
- Randall, Ty A. *Evaluation of Civil Engineering Operations Flight Competitive Sourcing Standards and Metrics*. AFIT/GEE/ENV/02M-10. Faculty Advisor: Lt Col Heidi S. Brothers, DSN: 785-3636, ext 4800. Sponsor: AF/XPMS.
- *Rhodes, Brian S. *Chromate Content Bias Versus Overspray Particle Size in Three Aircraft Primer Paints*. AFIT/GEE/ENV/02M-11. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: HQ AFMC/CEVQ and AFRL/MLQL.
- *Schilke, Richard. *Hexavalent Chromium Dissociation from Oversprayed Particles into Fluid for Three Aircraft Primers*. AFIT/GEE/ENV/02M-12. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: AFRL/MLQL and HQ AFMC/CEVQ.
- Spencer, Yvonne S. *Can a Government Agency Integrate Private Sector Practices? A Case Study of a Fee-for-Service Organization*. AFIT/GEE/ENV/02M-13. Faculty Advisor: Maj Michael T. Reh, DSN: 785-3636, ext 4711. Sponsor: AFMC/MSG.
- Staples, Michael R. *An Analysis of Horizontal Flow Treatment Well Applicability for the Treatment of Chlorinated Solvent Contaminated Groundwater at United States Forces Korea Installations*. AFIT/GEE/ENV/02M-14. Faculty Advisor: Dr. Mark N. Goltz, DSN: 785-3636, ext 4638. Sponsor: AFCEE/ERT.
- Underhill, John R. *Predictability and Family Support: Effects on Air Force Organizational Outcomes*. AFIT/GEE/ENV/02M-15. Faculty Advisor: Maj Michael T. Reh, DSN: 785-3636, ext 4711. Sponsor: AFIT/EN.
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- Drollette, Edward H. *Six Years After its Passage, What Has Been the Impact of the Clinger-Cohen Act on the U.S. Air Force?*. AFIT/GIR/ENV/02M-01. Faculty Advisor: Dr. Alan R. Heminger, DSN: 785-3636, ext 4797. Sponsor: AF-CIO/ST.

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Young, Ian A. *Development of a Pilot Candidate Selection Model Using Multivariate Techniques*. AFIT/GOR/ENS/02-18. Faculty Advisors: Dr. Kenneth W. Bauer, DSN: 785-6565, ext 4328, Capt Stephen Chambal, DSN: 785-6565, ext 4314. Sponsor: AETC/SAS.

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Akyazi, Ugur. *Commercial Regional Space/Airborne Imaging*. AFIT/GSE/ENY/02-1. Faculty Advisor: Dr. Curtis H. Spenny, DSN: 785-7777, ext 3296. Sponsor: AFIT/EN.

Arin, Arif. *Commercial Regional Space/Airborne Imaging*. AFIT/GSE/ENY/02-1. Faculty Advisor: Dr. Curtis H. Spenny, DSN: 785-7777, ext 3296. Sponsor: AFIT/EN.

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3.3 SPONSORS OF MASTER'S THESES

NOTE: () indicates page number * Multiple Sponsors

3.3.1 AIR FORCE (28)

3.3.2 AIR COMBAT COMMAND (29)

AIR FORCE INFORMATION WARFARE CENTER
UAV BATTLELAB

3.3.3 AIR EDUCATION AND TRAINING COMMAND (29)

AIR FORCE INSTITUTE OF TECHNOLOGY

3.3.4 AIR FORCE MATERIEL COMMAND (31)

AERONAUTICAL SYSTEMS CENTER
AIR FORCE RESEARCH LABORATORY
AIR FORCE RESEARCH LABORATORY/AIR FORCE OFFICE OF SCIENTIFIC RESEARCH
SPACE AND MISSILE SYSTEMS CENTER
AIR FORCE FLIGHT TEST CENTER

3.3.5 AIR FORCE SPACE COMMAND (38)

3.3.6 AIR FORCE SPECIAL OPERATIONS COMMAND (38)

3.3.7 AIR MOBILITY COMMAND (38)

3.3.8 PACIFIC AIR FORCES (38)

3.3.9 USAF FIELD OPERATING AGENCIES (38)

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
AIR FORCE CIVIL ENGINEER SUPPORT AGENCY
AIR FORCE COMBAT CLIMATOLOGY CENTER
AIR FORCE TECHNICAL APPLICATIONS CENTER
AIR FORCE WEATHER AGENCY

3.3.10 USAF DIRECT REPORTING UNITS (40)

AIR FORCE COMMUNICATION AGENCY
AIR FORCE OPERATIONAL TEST AND EVALUATION CENTER

3.3.11 ARMY (40)

3.3.12 DEPARTMENT OF DEFENSE (40)

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
DEFENSE THREAT REDUCTION AGENCY
OFFICE OF SECRETARY OF DEFENSE
USSTRATCOM

3.3.13 NATIONAL SECURITY AGENCY (41)

3.3.14 DEPARTMENT OF ENERGY (41)

3.3.15 DEPARTMENT OF HOMELAND SECURITY (42)

US COAST GUARD

3.3.16 DAYTON AREA GRADUATE STUDIES INSTITUTE (42)

3.3.17 NORTH ATLANTIC TREATY ORGANIZATIONS (42)

3.3.18 ARGENTINE AIR FORCE MATERIEL COMMAND (42)

3.3.19 KOREAN AIR FORCE (42)

3.3.20 TURKISH AIR FORCE (42)

3.3.21 STAR TECHNOLOGY and RESEARCH, INC. (43)

3.3.22 SHEET DYNAMICS, LTD. (43)

3.3.1 AIR FORCE

Andel, Todd R. *Design, Simulation, and Evaluation of Computer Network Communications for the Air Force's Fleet of VC-25 Aircraft, Air Force One*. AFIT/GE/ENG/02-33. Faculty Advisor: Dr. Richard A. Raines, DSN: 785-3636, ext 4715. Sponsor: Presidential Airlift Squadron, PAS/DOR.

Boyd, Aaron J. *Source Selection Support*. AFIT/GAQ/ENV/02M-01. Faculty Advisor: Maj Timothy S. Reed, DSN: 785-3636, ext 4799. Sponsor: SAF/AQ.

Dailey, Ericka M. *The Management of Energy Savings Performance Contracts (ESPCs)*. AFIT/GAQ/ENV/02M-04. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: SAF/AQCX.

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Lasch, Peter S. *Analysis of Air Force Contingency Contracting Training Needs*. AFIT/GAQ/ENV/02M-12. Faculty Advisor: Maj Timothy Reed, DSN: 785-3636, ext 4799. Sponsor: SAF/AQC.

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Wynne, Lee A. *Career Anchors of United States Air Force Information Systems Workers: A Turnover Predictor?*. AFIT/GIR/ENV/02M-05. Faculty Advisor: Lt Col David P. Biros, DSN: 785-3636, ext 4826. Sponsor: HQ USAF/SCXFD.

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Ballah, Jason T. *Integrated Manet Mutual Authentication System (IMMAS)*. AFIT/GCS/ENG/02M-01. Faculty Advisor: Maj Rusty O. Baldwin, DSN: 785-3636, ext 4612. Sponsor: AFIWC/IO (ACC).

*Bassham, Christopher B. *Automatic Target Recognition Classification System Evaluation Methodology*. AFIT/DS/ENS/02-03. Faculty Advisor: Dr. Kenneth W. Bauer, Jr., DSN: 785-6565, ext 4328. Sponsor: AFRL/Sensors and ACC/DRSA.

*Jensen, Shawn J. *An Evaluation of GeoBest Contingency Beddown Planning Software Using the Technology Acceptance Model*. AFIT/GEE/ENV/02M-04. Faculty Advisor: Lt Col Heidi S. Brothers, DSN: 785-3636, ext 4800. Sponsor: Air Force Civil Engineer, HQ AFCESA/CEX and Det 1 823 RHS/CC.

Zuhlsdorf, Michael J. *Aerospace Expeditionary Force Implementation and the Effect on Team Cohesion*. AFIT/GEE/ENV/02M-18. Faculty Advisor: Lt Col Al Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: Air Force Aerospace Expeditionary Force Center (ACC).

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3.3.3 AIR EDUCATION AND TRAINING COMMAND

Young, Ian A. *Development of a Pilot Candidate Selection Model Using Multivariate Techniques*. AFIT/GOR/ENS/02-18. Faculty Advisors: Dr. Kenneth W. Bauer, DSN: 785-6565, ext 4328, Capt Stephen Chambal, DSN: 785-6565, ext 4314. Sponsor: AETC/SAS.

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Arin, Arif. *Commercial Regional Space/Airborne Imaging*. AFIT/GSE/ENY/02-1. Faculty Advisor: Dr. Curtis H. Spenny, DSN: 785-7777, ext 3296. Sponsor: AFIT/EN.

- Aslan, Ismail. *Selecting Salient Features in High Feature to Exemplar Ratio Conditions*. AFIT/GOR/ENS/02-02. Faculty Advisor: Dr. Kenneth W. Bauer, Jr., DSN: 785-6565, ext 4328. Sponsor: AFIT/EN.
- Boga, Birce. *Commercial Regional Space/Airborne Imaging*. AFIT/GSE/ENY/02-1. Faculty Advisor: Dr. Curtis H. Spenny, DSN: 785-7777, ext 3296. Sponsor: AFIT/EN.
- Chelf, Kurt A. *Beyond A-76: How to Achieve the Goals without the Pain*. AFIT/GAQ/ENV/02M-02. Faculty Advisor: Maj Timothy S. Reed, DSN: 785-3636, ext 4799. Sponsor: AFIT/EN.
- Cho, Yong Kun. *Empirical Analysis of Various Multi-Dimensional Knapsack*. AFIT/GOR/ENS/02-04. Faculty Advisor: Lt Col Raymond R. Hill, DSN: 785-6565, ext 4323. Sponsor: AFIT/EN.
- Crockett, Heather C. *Characterization of the Optical and Electrical Properties of Proton-Irradiated 4H-Silicon Carbide*. AFIT/GNE/ENP/02M-01. Faculty Advisor: Maj Michael B. Scott, DSN: 785-3636, ext 4706. Sponsor: AFIT/EN.
- Dubelko, John J. *A System Dynamics Approach to Modeling Aircraft System Production Break Costs*. AFIT/GAQ/ENV/02M-06. Faculty Advisor: Capt Michael A. Greiner, DSN: 785-3636, ext 4588. Sponsor: AFIT/EN.
- Durmus, Ali. *Commercial Regional Space/Airborne Imaging*. AFIT/GSE/ENY/02-1. Faculty Advisor: Dr. Curtis H. Spenny, DSN: 785-7777, ext 3296. Sponsor: AFIT/EN.
- Flietstra, Timothy D. *An Integrated Architecture and Feature Selection Algorithm for Radial Basis Neural Network*. AFIT/GOR/ENS/02-07. Faculty Advisor: Dr. Kenneth W. Bauer, DSN: 785-6565, ext 4328. Sponsor: AFIT/EN.
- Garwood, Kenneth R. *Admissions Criteria and Academic Performance in the AFIT Graduate Cost Analysis Program*. AFIT/GAQ/ENV/02M-13. Faculty Advisor: Maj Mark A. Ward, DSN: 785-3636, ext 4742. Sponsor: AFIT/EN.
- Greiman, Christopher. *Compare and Complexity - When is Compare Not Enough?*. AFIT/GAQ/ENV/02M-10. Faculty Advisor: Capt Michael A. Greiner, DSN: 785-3636, ext 4588. Sponsor: AFIT/EN.
- Goldberg, Jacob B. *Finite Extinction Time for Non-Linear Absorption-Diffusion Equations*. AFIT/GAM/ENC/02S-02. Faculty Advisor: Dr. Alan V. Lair, DSN: 785-3636, ext 4519. Sponsor: AFIT/EN.
- Jones, Kent T. *Measurements of Neutron Induced Surface and Bulk Defects in 4H Silicon Carbide*. AFIT/GNE/ENP/02M-03. Faculty Advisor: LTC Petrosky, DSN: 785-3636, x4600. Sponsor: AFIT/EN.
- Kahraman, Yucel R. *Robust Sensitivity Analysis for Multi-Attribute Deterministic Hierarchical Value Models*. AFIT/GOR/ENS/02-10. Faculty Advisor: Capt Chambal, DSN: 785-6565, ext 4284. Sponsor: AFIT/EN.
- Katzer, Dee J. *Decision Analysis with Value-Focused Thinking as a Methodology in Structuring the Civil Engineer Operations Flight*. AFIT/GEE/ENV/02M-06. Faculty Advisor: Lt Col Al Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: AFIT/EN.
- Kaya, Ilhan. *Modeling Aerospace Ground Equipment (AGE) Usage in Military Environments*. AFIT/GOR/ENS/02-11. Faculty Advisor: Lt Col Hill, DSN: 785-6565, ext 4323. Sponsor: AFIT/EN.
- Koo, Jae Young. *An Analysis of the Korean F-16 Mission Capable Spares Foreign Military Sales Supply Chain Using Supply Chain Operations Reference-Model*. AFIT/GLM/ENS/02-09. Faculty Advisor: Lt Col Stephan P. Brady, DSN: 785-6565, ext 4367. Sponsor: AFIT/EN.

Kosucu, Kubilay. *Estimating the Operating and Support Cost Difference Among TUAFC-130E, C-130B and USAF C-130J Aircraft*. AFIT/GLM/ENS/02-10. Faculty Advisor: Lt Col Stephen M. Swartz, DSN: 785-6565, ext 4285. Sponsor: AFIT/EN.

Kowash, Benjamin R. *Parameter Study for Optimizing the Mass of a Space Nuclear Power System Radiation Shield*. AFIT/GNE/ENP/02M-04. Faculty Advisor: Dr. Tuttle, DSN: 785-3636, x4536. Sponsor: AFIT/EN.

Labowski, Kristofer S. *Computational Modeling of a Time-Independent, Heterogeneous Reactor Core Using Simplified Discrete Ordinate Neutron Transport Techniques*. AFIT/GAP/ENP/01S-01. Faculty Advisor: LTC James C. Petrosky, DSN: 785-3636, ext 4600. Sponsor: AFIT/EN.

Lee, Jae Soong. *Multicast Routing Algorithms and Failure Analyses for Low Earth Orbit Satellite Communication Networks*. AFIT/GE/ENG/02-34. Faculty Advisor: Dr. Richard A. Raines, DSN: 785-3636, ext 4715. Sponsor: AFIT/EN.

Mustafa, Samir. *Development of a Method for Assessing the Organizational, Cultural, and Political Considerations Affecting the Insertion of Siloms into the MoD*. AFIT/GLM/ENS/02-12. Faculty Advisor: Lt Col Stephen M. Swartz, DSN: 785-6565, ext 4285. Sponsor: AFIT/EN.

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Underhill, John R. *Predictability and Family Support: Effects on Air Force Organizational Outcomes*. AFIT/GEE/ENV/02M-15. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: AFIT/EN.

Zitzmann, Charles C. *The Predictive Validity of the AFIT Graduate Engineering and Environmental (GEEM) Admission Requirements*. AFIT/GAQ/ENV/02M-16. Faculty Advisor: Maj Mark A. Ward, DSN: 785-6565, ext 4314. Sponsor: AFIT/EN.

3.3.4 AIR FORCE MATERIEL COMMAND

Cintron, Edwin R. *An Analysis of the Pricing Strategy of a Government Fee-for-Service Organization*. AFIT/GAQ/ENV/02M-03. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: AFMC/MSG/ESS (Material Systems Group).

Huester, Heinz H. *Improving Performance Analysis of the Distribution Segment of the Air Force Logistics Pipeline*. AFIT/GLM/ENS/02-05. Faculty Advisor: Dr. William Cunningham, III, DSN: 785-6565, ext 4283. Sponsor: AFMC/LSO.

Marion-Mullins, Cynthia L. *How Can the Air Force Maximize the Value of Reverse Auctioning as a Pricing Technique?*. AFIT/GAQ/ENV/02M-13. Faculty Advisor: Maj Timothy S. Reed, DSN: 785-3636, ext 4799. Sponsor: Air Force Materiel Command.

Miller, Bruce J. *An Exploratory Analysis of the Impacts of Acquisition Reform Initiatives on Small Business Participation in the Aerospace Industry*. AFIT/GAQ/ENV/02M-14. Faculty Advisor: Maj Timothy Reed, DSN: 785-3636, ext 4799. Sponsor: Air Force Outreach Program Office (AFMC).

*Rhodes, Brian S. *Chromate Content Bias Versus Overspray Particle Size in Three Aircraft Primer Paints*. AFIT/GEE/ENV/02M-11. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: HQ AFMC/CEVQ and AFRL/MLQL.

*Schilke, Richard. *Hexavalent Chromium Dissociation from Overspray Particles into Fluid for Three Aircraft Primers*. AFIT/GEE/ENV/02M-12. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: AFRL/MLQL and HQ AFMC/CEVQ.

*Sharp, Christopher L. *An Evaluation of Facility Maintenance and Repair Strategies of Select Companies*. AFIT/GEE/ENV/02-19. Faculty Advisor: Lt Col Heidi Brothers, DSN: 785-3636, ext 4800. Sponsor: HQ AF/ILEPA and HQ AFMC/CE.

Shyong, Shenn-Rong. *Advanced Planning and Scheduling in the United States Air Force Depot-Level Maintenance*. AFIT/GLM/ENS/02-16. Faculty Advisor: Lt Col John O. Miller, DSN: 785-6565, ext 4326. Sponsor: AFMC/LGPA.

Spencer, Yvonne S. *Can a Government Agency Integrate Private Sector Practices? A Case Study of a Fee-for-Service Organization*. AFIT/GEE/ENV/02M-13. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: AFMC/MSG.

AERONAUTICAL SYSTEMS CENTER

Kim, Jesung. *Post-Processing of Low Dose Mammography Images*. AFIT/GE/ENG/02-35. Faculty Advisor: Dr. Steven Gustafson, DSN 785-3636, ext 4598. Sponsor: 74 MDG/SGSXN.

McNamara, Todd M. *The Horizontal Extent of Cloud-to-Ground Lightning Over the Kennedy Space Center*. AFIT/GM/ENP/02M-06. Faculty Advisor: Maj Gary R. Huffines, DSN: 785-3636, ext 4511. Sponsor: ASC/YCA.

Nelson, Lee A. *Synthesis of 3-Dimensional, Lightning Data and Weather Radar Data to Determine the Distance that Naturally Occurring Lightning Travels from Thunderstorms*. AFIT/GM/ENP/02M-07. Faculty Advisor: Maj Gary R. Huffines, DSN: 785-3636, ext 4511. Sponsor: ASC/YCA.

Patton, Douglas C. *Developing an Upward Feedback Instrument for Supervisor Development*. AFIT/GLM/ENS/02-14. Faculty Advisor: Maj Paul W. Thurston, DSN: 785-7777, ext 3276. Sponsor: ASC/HRI.

Supple, Vincent P. *Estimating Engineering Cost Risk Using Logistic and Multiple Regression*. AFIT/GAQ/ENC/02-02. Faculty Advisor: Maj Edward D. White III. Sponsor: ASC/FMCE (AFMC).

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Vollmer, David R. *The Horizontal Extent of Lightning Based on Altitude and Atmospheric Temperature*. AFIT/GM/ENP/02M-10. Faculty Advisor: Maj Gary R. Huffines, DSN: 785-3636, ext 4511. Sponsor: ASC/YCA.

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Allnut, Richard A. *Development and Characterization of an Emergency Communications System Using Newar Vertical Incident Skywave Antennas*. AFIT/GE/ENG/02M-02. Faculty Advisor: Dr. Andrew J. Terzuoli, Jr., DSN: 785-3636, ext 4717. Sponsor: AFRL/HEH.

Anderson, Jon M. *Nonlinear Suppression of Range Ambiguity in Pulse Doppler Radar*. AFIT/DS/ENG/01-05. Faculty Advisor: Dr. Michael Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SN.

Anttonen, John S. *Techniques for Reduced Order Modeling of Aeroelastic Structures with Deforming Grids*. AFIT/DS/ENY/01-01. Faculty Advisor: Dr. Paul King, DSN: 785-3636, ext 4628. Sponsor: AFRL/VA.

*Bassham, Christopher B. *Automatic Target Recognition Classification System Evaluation Methodology*. AFIT/DS/ENS/02-03. Faculty Advisor: Dr. Kenneth W. Bauer, Jr., DSN: 785-6565, ext 4328. Sponsor: AFRL/Sensors and ACC/DRSA.

- Bebo, John L. *Using Relational Schemata in a Computer Immune System to Detect Multiple-Packet Network Intrusions*. AFIT/GCS/ENG/02M-02. Faculty Advisor: Dr. Gregg Gunsch, DSN: 785-6565, ext. 4281. Sponsor: AFRL/IFGB.
- Borgeson, David M. *Boundary Layer Control Using Micro-Electromechanical Systems (MEMS)*. AFIT/GSO/ENY/02-1. Faculty Advisor: Dr. Milton E. Franke, DSN: 785-3636, ext 4720. Sponsor: AFRL/PRTT.
- Brower, Ronald W. *Congruent Weak Conformance*. AFIT/DS/ENG/02-04. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/IF.
- Bugg, Bradley M. *An Anion Characterization of a Constructed Wetland Used for Chlorinated Ethene Remediation*. AFIT/GEE/ENV/02M-01. Faculty Advisor: Dr. Michael L. Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/MLQ.
- Camp, John L. *Performance Analysis of a Secure IEEE 802.11B Wireless Network Incorporating Personal Digital Assistants*. AFIT/GCS/ENG/02-10. Faculty Advisor: Maj Rusty O. Baldwin, DSN 785-3636, ext 4612. Sponsor: AFRL/HESS (AFMC).
- Campbell, Jason S. *A Comparison of Modeling Approaches in Simulating Chlorinated Ethene Removal in a Constructed Wetland by a Microbial Consortia*. AFIT/GEE/ENV/02M-02. Faculty Advisor: Dr. Michael Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/MLQ.
- Canli, Hakan. *A Visual Meta-Language for Generic Modeling*. AFIT/GCE/ENG/02M-1. Faculty Advisor: Maj Karl S. Mathias, DSN: 785-6565, ext 4280. Sponsor: AFRL/SNZW.
- Carraher, Erin Y. *Periodic Methods for Controlling a Satellite in Formation*. AFIT/GA/ENY/02-1. Faculty Advisor: Lt Col David . Jacques, DSN: 785-7777, ext 3287. Sponsor: AFRL/VACA.
- Coker, Jamie C. *Design of a High-Fidelity MATLAB Simulator for an Ultratightly Coupled GPS/INS Receiver Based on a Federated Filter Approach*. AFIT/GE/ENG/02M-03. Faculty Advisor: Lt Col Mikel M. Miller, DSN: 785-7777, ext 3295. Sponsor: AFRL/SNRP.
- Colak, Engin. *Portable High-Performance Indexing for Vector Product Format Spatial Databases*. AFIT/GCE/ENG/02M-02. Faculty Advisor: Maj Karl S. Mathias, DSN: 785-6565, ext 4280. Sponsor: AFRL/SNZW.
- Day, Richard O. *A Multiobjective Approach Applied to the Protein Structure Prediction Problem*. AFIT/GE/ENG/02M-05. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/Materials.
- Dileo, Jonathan M. *Ontological Engineering and Mapping in Multiagent Systems Development*. AFIT/GCS/ENG/02M-03. Faculty Advisor: Lt Col Timothy M. Jacobs, DSN: 785-6565, ext 4279. Sponsor: AFRL/IFTB.
- Dunkel, Robert E. *Investigation of Cooperative Behavior in Autonomous Wide Area Search Munitions*. AFIT/GAE/ENY/02-4. Faculty Advisor: Lt Col David R. Jacques, DSN: 785-7777, ext 3287. Sponsor: AFRL/MNGN.
- Entingh, Andrew C. *Groundwater Flow through a Constructed Treatment Wetland*. AFIT/GEE/ENV/02M-03. Faculty Advisor: Dr. Michael L. Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/MLQ.
- Erickson, John W. *Multiple Model Adaptive Estimation (MMAE) Applied to the Ultra-Tightly Couple IMU/GPS Methodology*. AFIT/DS/ENG/-01-01. Faculty Advisor: Dr. Peter S. Maybeck, DSN: 785-3636, ext 4639. Sponsor: AFRL/MN.

*Fellows, James A. *Electrical Activation Studies of ION Implanted Galium Nitride*. AFIT/DS/ENP/02-2. Faculty Advisor: Dr. Yung Kee Yeo, DSN: 785-3636, ext 4532. Sponsor: AFOSR/NE and AFRL/MLPS.

Goodman, Scott A. *Sensitivity Analysis of a Flight Line Radar Cross Section Measurement*. AFIT/GE/ENG/02M-08. Faculty Advisor: Maj William D. Wood, DSN: 785-3636, ext 4639. Sponsor: AFRL/SNS.

Gorski, Steven M. *Carrier Dynamics in Mid-Infrared Quantum Well Lasers Using Time-Resolved Photoluminescence*. AFIT/GAP/ENP/02M-01. Faculty Advisor: Lt Col Michael A. Marciniak, DSN: 785-3636, ext 4529. Sponsor: AFRL/Directed Energy Directorate.

Hale, Todd B. *Airborne Radar Interference Suppression Using Adaptive Three-Dimensional Techniques*. AFIT/DS/ENG/02-02. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNRT.

Hamilton, Christopher E. *Design Study of Triggered Isomer Heat Exchanger-Combustion Hybrid Jet Engine for High Altitude Flight*. AFIT/GAE/ENY/02-6. Faculty Advisor: Dr. Paul I. King, DSN: 785-3636, ext 4628 and Dr. M. E. Franke, DSN: 785-3636, ext 4720. Sponsor: AFRL/DEBE.

Harm, Michael D. *Development of a Tm:Ho:YLF-Laser-Pumped Orientation-Patterned Gallium Arsenide Optical Parametric Oscillator*. AFIT/GEO/ENP/02-01. Faculty Advisor: Dr. Won B. Roh, DSN: 785-3636, ext 4509. Sponsor: AFRL/SNJT.

Harris, Chad M. *A Collaborative Visualization Framework Using JINI Tecnology*. AFIT/GCS/ENG/02M-04. Faculty Advisor: Lt Col Timothy M. Jacobs, DSN: 785-6565, ext 4279. Sponsor: AFRL/IFTC.

Harvey, Michael C. *Design and Fabrication of Micro-Electro-Mechanical Structures for Tunable Micro-Optical Devices*. AFIT/GEO/ENG/02M-01. Faculty Advisor: Lt Col James A. Lott, DSN: 785-3636, ext 4576. Sponsor: AFRL/SNDD.

Hebert, Jeffrey M. *Air Vehicle Path Planning*. AFIT/DS/ENG/01-04. Faculty Advisor: Dr. Meir Pachter, DSN: 785-3636 ext 4593. Sponsor: AFRL/VACA.

Hoffman, Gregory S. *A Novel Electrocardiogram Segmentation Algorithm Using a Multiple Model Adaptive Estimator*. AFIT/GE/ENG/02M-10. Faculty Advisor: Lt Col Mikel M. Miller, DSN: 785-7777, ext 3295. Sponsor: AFRL/HEPA.

Istanbulluoglu, Muhittin. *Performance Tradeoff Study of a GPS-Aided INS for a Rocket Trajectory*. AFIT/GE/ENG/02M-11. Faculty Advisor: Dr. Peter Maybeck, DSN: 785-3636, ext. 4581. Sponsor: AFRL/SNAR.

Jensen, Nathan A. *Space Time Adaptive Processing and Clutter Classification Integration and Evaluation*. AFIT/GCS/ENG/02M-05. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/IFTC.

Koper, Eric M. *Antenna Coupling Minimization for the VC-25A Using Genetic Algorithms, Local Search, and Cylinder Approximations*. AFIT/GE/ENG/02M-12. Faculty Advisor: Maj William D. Wood, DSN: 785-3636, ext 4639. Sponsor: AFRL/SNR.

Lee, Marion J. *Wavelet Domain Communication System (WDCS): Packet-Based Wavelet Spectral Estimation and M-Ary Signaling*. AFIT/GE/ENG/02M-14. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNRW.

Lucia, David J. *Reduced Order Modeling for High Speed Flows with Moving Shocks*. AFIT/DS/ENY/01-03. Faculty Advisor: Dr. Paul King, DSN: 785-3636, ext 4628. Sponsor: AFRL/VASD.

Lykins, Rodney D. *Application of Information Retrieval Techniques to Heterogeneous Databases in the Virtual Distributed Laboratory*. AFIT/GCS/ENG/02M-06. Faculty Advisor: Maj Karl S. Mathias, DSN: 785-6565, ext 4280. Sponsor: AFRL/SN.

Magaziner, Russell S. *Examination of Contact Width on Fretting Fatigue*. AFIT/GAE/ENY/02-8. Faculty Advisor: Dr. Shankar Mall, DSN: 785-3636, ext 4587. Sponsor: AFRL/MLLMN.

Opperman, Bryan C. *Determination of Chlorinated Solvent Contamination in an Upward Flow Constructed Wetland*. AFIT/GEE/ENV/02M-07. Faculty Advisor: Dr. Michael L. Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/MLQ.

Papaphotis, Matthew J. *An Analysis of Mutually Dispersive Brown Symbols for Non-Linear Ambiguity Suppression*. AFIT/GE/ENG/02M-19. Faculty Advisor: Maj Roger L. Claypoole, Jr., DSN: 785-3636, ext 4625. Sponsor: AFRL/SN.

Park, Sang Mork. *Analysis for Cooperative Behavior Effectiveness of Autonomous Wide Area Search Munitions*. AFIT/GAE/ENY/02-9. Faculty Advisor: Lt Col David R. Jacques, DSN: 785-7777, ext 3287. Sponsor: AFRL/VACA.

Parker, Timothy W. *Mean Performance Optimization of an Orbiting Distributed Aperture by Warped Aperture Image Plane Comparisons*. AFIT/DS/ENY/02-3. Faculty Advisor: Lt Col David R. Jacques, DSN: 785-7777, ext 3287. Sponsor: AFRL/VACA.

Polat, Murat. *INS Aiding by Tracking an Unknown Ground Object*. AFIT/GE/ENG/02M-20. Faculty Advisor: Dr Meir Pachter, DSN: 785-3636, ext 4593. Sponsor: AFRL/SNAT.

Raley, Jeremy A. *Fabrication Techniques for III-V Micro-Opto-Electro-Mechanical Systems*. AFIT/GE/ENG/02M-21. Faculty Advisor: Lt Col James A. Lott, DSN: 785-3636, ext 4576. Sponsor: AFRL/SNDD.

*Rhodes, Brian S. *Chromate Content Bias Versus Overspray Particle Size in Three Aircraft Primer Paints*. AFIT/GEE/ENV/02M-11. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: HQ AFMC/CEVQ and AFRL/MLQL.

Rolling, August J. *Alternative Pulse Detonation Engine Ignition System Investigation Through Detonation Splitting*. AFIT/GAE/ENY/02-10. Faculty Advisor: Dr. Paul I. King, DSN: 785-3636, ext 4628. Sponsor: AFRL/PRTS.

*Schilke, Richard. *Hexavalent Chromium Dissociation from Overspray Particles into Fluid for Three Aircraft Primers*. AFIT/GEE/ENV/02M-12. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: AFRL/MLQL and HQ AFMC/CEVQ.

Starman, Lavern A. *Characterization of Residual Stress in Microelectromechanical Systems (MEMS) Devices Using Raman Spectroscopy*. AFIT/DS/ENG/02-01. Faculty Advisor: Lt Col James Lott, DSN: 785-3636, ext 4527. Sponsor: AFRL/MLMR.

Sahan, Onder. *Fretting Fatigue Behavior of a Titanium Alloy Ti-6Al-4V at Elevated Temperature*. AFIT/GAE/ENY/02-11. Faculty Advisor: Dr. Shankar Mall, DSN: 785-3636, ext 4587. Sponsor: AFRL/MLLMN.

Sitler, Kevin L. *Exploitation of Advanced Waveform Coding Techniques to Enhance Stepped-Frequency Radar Performance*. AFIT/GE/ENG/02M-24. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNAS.

Tellez, Jason A. *High Energy Laser Pointing Through Extended Turbulence*. AFIT/GE/ENG/02-31. Faculty Advisor: Maj Eric P. Magee, DSN 785-2024. Sponsor: AFRL/DEBA.

Tredway, Brian R. *Using the GPS to Collect Trajectory Data for Ejection Seat Design, Validation, and Testing*. AFIT/GE/ENG/02M-27. Faculty Advisor: Lt Col Mikel M. Miller, DSN: 785-7777, ext 3295. Sponsor: AFRL/HEPA.

Trias, Eric D. *An Extensible Information Retrieval Methodology for Reuse and Integration of Combat Simulation Database Models*. AFIT/GCS/ENG/02M-08. Faculty Advisor: Maj Karl S. Mathias, DSN: 785-6565, ext 4280. Sponsor: AFRL/SNZW.

Van Berendonck, Christopher L. *Bubble World-A Novel Visual Information Retrieval Technique*. AFIT/GCS/ENG/02M-09. Faculty Advisor: Lt Col Timothy M. Jacobs, DSN: 785-6565, ext 4279. Sponsor: AFRL/IFTB.

Woodcock, Anthony R. *Microdot – A Four-Bit Microcontroller Designed for Distributed Low-End Computing in Satellites*. AFIT/GE/ENG/02M-28. Faculty Advisor: Lt Col James Lott, DSN: 785-336, ext 4576. Sponsor: AFRL/V SSE.

Yavuz, Kursat. *Multi-Objective Mission Route Planning Using Particle Swarm Optimization*. AFIT/GCE/ENG/02M-04. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/IFTA.

Yilmaz, Okan. *Data Mining Feature Subset Weighting and Selection Using Genetic Algorithms*. AFIT/GCE/ENG/02M-05. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/IFTA.

Yuksel, Halil I. *Effects of Shot-Peening on High Cycle Fretting Fatigue Behavior of Ti-6Al-4V*. AFIT/GAE/ENY/02-12. Faculty Advisor: Dr. Shankar Mall, DSN: 785-3636, ext 4587. Sponsor: AFRL/MLLMN.

Zavala, Ever O. *Characterization of a Low Dispersion Sensor for Direction Finding Applications*. AFIT/GE/ENG/02M-29. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNRR.

Zetterlind, Virgil E. *Distributed Beacon Requirements for Branch Point Tolerant Laser Beam Compensation in Extended Atmospheric Turbulence*. AFIT/GE/ENG/02M-30. Faculty Advisor: Maj Eric P. Magee, DSN: 785-2024. Sponsor: AFRL/DEBA.

Zolock, Ruth A. *Characterization of the Surface Morphology of Bacillus Spores by Atomic Force Microscopy*. AFIT/GEE/ENV/02M-17. Faculty Advisor: Dr. Charles A. Bleckmann, DSN: 785-6565, ext 4721. Sponsor: AFRL/HE.

AIR FORCE RESEARCH LABORATORY/AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

Annaballi, Ronjon. *A Multiple Ant Colony Optimization Metaheuristic for the Air Refueling Tanker Assignment Problem*. AFIT/GOR/ENS/02-01. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: AFOSR.

*Campbell, Matthew L. *Cell Modeling*. AFIT/GAM/ENC/02M-01. Faculty Advisor: Dr. Dennis W. Quinn, DSN: 785-6565, ext 4522. Sponsor: AFOSR and DAGSI.

Combs, Todd E. *A Combined Adaptive Tabu Search and Set Partitioning Approach for the Crew Scheduling Problem with an Air Tanker Crew Application*. AFIT/DS/ENS/02-04. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: AFOSR/NM.

Conk, Ryan D. *Fabrication Techniques for Micro-Optical Device Arrays*. AFIT/GE/ENG/02M-04. Faculty Advisor: Lt Col James A. Lott, DSN: 785-3636, ext 4576. Sponsor: AFOSR.

Crino, John R. *A Group Theoretic Tabu Search Methodology for Solving the Theater Distribution Vehicle Routing and Scheduling Problem*. AFIT/DS/ENS/02-02. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: AFOSR/NM.

Daly, Mark A. *Task Load and Automation Use in an Uncertain Environment*. AFIT/GAQ/ENV/02M-05. Faculty Advisor: Lt Col David Biros, DSN: 785-3636, ext 4826. Sponsor: AFOSR.

*Fellows, James A. *Electrical Activation Studies of ION Implanted Galium Nitride*. AFIT/DS/ENP/02-2. Faculty Advisor: Dr. Yung Kee Yeo, DSN: 785-3636, ext 4532. Sponsor: AFOSR/NE and AFRL/MLPS.

Fredley, Michael L. *A Decomposition Approach for the Multi-Modal, Resource-Constrained, Multi-Project Scheduling Problem with Generalized Precedence and Expediting Resources*. AFIT/DS/ENS/01-02. Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325. Sponsor: AFOSR.

Kil, Chong Kyung. *Visual Execution Analysis for Multiagent Systems*. AFIT/GCS/ENG/02-12. Faculty Advisor: Lt Col Timothy M. Jacobs, DSN: 785-6565, ext 4279. Sponsor: AFOSR.

Laird, David J. *The Investigation of Hypervelocity Gouging*. AFIT/DS/ENY/02-01. Faculty Advisor: Dr. Anthony N. Palazotto, DSN: 785-3636, ext 4599. Sponsor: AFOSR/NM.

Lofthouse, Andrew J. *Computational Aerodynamic Analysis of the Flow Field about a Hypervelocity Test Sled*. AFIT/GAE/ENY/02-07. Faculty Advisor: Lt Col Montgomery C. Hughson, DSN: 785-3636, ext 4597. Sponsor: AFOSR/NM.

Olson, Rebecca A. *Comparing Clustering Algorithms for Use with Genomic and Proteomic Data*. AFIT/GAM/ENC/02S-1. Faculty Advisor: Dr. Dennis W. Quinn, DSN: 785-3636, ext 4522. Sponsor: AFOSR.

Rogers, James W. *Modeling Axisymmetric Optical Precision Piezoelectric Membranes*. AFIT/DS/ENY/01-02. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-3636, ext 4317. Sponsor: AFOS/NA.

Russell, Timothy H. *Laser Intensity Scaling Through Stimulated Scattering in Optical Fibers*. AFIT/DS/ENP/02-03. Faculty Advisor: Dr. Won B. Roh, DSN: 785-3636, ext 4509. Sponsor: AFOSR/NE.

Single, Thomas G. *Experimental Vibration Analysis of Inflatable Beams for an AFIT Space Shuttle Experiment*. AFIT/GSO/ENY/02-2. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFOSR/NA.

Sobers, Michael D. *Smart Structures for Control of Optical Surfaces*. AFIT/GA/ENY/02-2. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFOSR/NA.

SPACE AND MISSILE SYSTEMS CENTER

Bergren, Scott E. *Fabrication and Cold-Flow Testing of Subscale Space-Based Laser Geometry*. AFIT/GAE/ENY/02-3. Faculty Advisor: Dr. Milton E. Franke, DSN: 785-3636, ext 4720. Sponsor: SMC/TL.

Enis, John A. *Spectrum Management and the Global Positioning System: A Case Study in Interagency Coordination*. AFIT/GAQ/ENV/02M-07. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: SMC/CZE.

Warren, David L. M. *Broadcast vs Precise GPS Ephemerides: A Historical Perspective*. AFIT/GSO/ENG/02M-01. Faculty Advisor: Maj John F. Raquet, DSN: 785-3636, ext 4580. Sponsor: SMC/CZE.

AIR FORCE FLIGHT TEST CENTER

Johnson, Donald A. *Suppression of Pilot-Induced Oscillation (PIO)*. AFIT/GAE/ENY/02-01. Faculty Advisor: Dr. Bradley S. Liebst, DSN: 785-3636, ext 4636. Sponsor: USAF Test Pilot School.

Wagner, Eugene H. *An Analytical Study of T-38 Drag Reduction in Tight Formation Flight*. AFIT/GAE/ENY/02-02. Faculty Advisor: Lt Col David R. Jacques, DSN: 785-7777, ext 3287. Sponsor: USAF Test Pilot School.

3.3.5 AIR FORCE SPACE COMMAND

Olsen, Peter F. *Issues in Modeling Military Space*. AFIT/GOR/ENS/02-13. Faculty Advisor: Dr. Richard Deckro, DSN: 785-6565, ext 4325. Sponsor: AFSPC Space Analysis Center.

3.3.6 AIR FORCE SPECIAL OPERATIONS COMMAND

Mattioda, Daniel D. *Use of Critical Chain Scheduling to Increase Aircraft Availability*. AFIT/GLM/ENS/02-11. Faculty Advisor: Lt Col Stephen M. Swartz, DSN: 785-6565, ext 4284. Sponsor: Air Force Special Operations Command (AFSOC).

3.3.7 AIR MOBILITY COMMAND

French, Lance R. *A Life Cycle Cost Analysis of the Proposed Replacement of Pope Air Force Base's C-130E Using a Fleet Replacement Model*. AFIT/GAQ/ENS/02-01. Faculty Advisor: Dr. William A. Cunningham, III, DSN: 785-6565, ext 4283. Sponsor: 43 OG/CDM (AMC).

Pektas, Mustafa Kemal. *Quicklook Air Mobility Modeling*. AFIT/GOR/ENS/02-14. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: HQ AMC/XPY.

3.3.8 PACIFIC AIR FORCES

Carter, Dean J. *Verification of MM5 Cloud Microphysics Schemes for East Asia*. AFIT/GM/ENP/02M-01. Faculty Advisor: Lt Col Ronald P. Lowther, DSN: 785-3636, ext 4645. Sponsor: PACAF/DOWO.

Schroeder, Brian K. *Long Range Forecast Possibilities for X-Band Radar Construction on Shemya*. AFIT/GM/ENP/02M-12. Faculty Advisor: Lt Col Lowther, DSN: 785-3636, ext 4645. Sponsor: 11 OWS (PACAF).

3.3.9 USAF FIELD OPERATING AGENCIES

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE

Parr, Jeffrey C. *Application of Horizontal Flow Treatment Wells for In Situ Treatment of Perchlorate Contaminated Groundwater*. AFIT/GEE/ENV/02M-08. Faculty Advisor: Dr. Mark N. Goltz, DSN: 785-3636, ext 4638. Sponsor: AFCEE/ERC.

Staples, Michael R. *An Analysis of Horizontal Flow Treatment Well Applicability for the Treatment of Chlorinated Solvent Contaminated Groundwater at United States Forces Korea Installations*. AFIT/GEE/ENV/02M-14. Faculty Advisor: Dr. Mark N. Goltz, DSN: 785-3636, ext 4638. Sponsor: AFCEE/ERT.

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

*Jensen, Shawn J. *An Evaluation of GeoBest Contingency Beddown Planning Software Using the Technology Acceptance Model*. AFIT/GEE/ENV/02M-04. Faculty Advisor: Lt Col Heidi S. Brothers, DSN: 785-3636, ext 4800. Sponsor: Air Force Civil Engineer, HQ AFCEA/CEX and Det 1 823 RHS/CC.

Phillips, Edward P. *Evaluating Air Force Civil Engineers' Current Automated Information Systems*. AFIT/GEE/ENV/02M-09. Faculty Advisor: Lt Col Al E. Thal, DSN: 785-3636, ext 4591. Sponsor: AFCESA/CEO.

Vanderburg, David D. *Comparative Energy and Cost Analysis Between Conventional HVAC Systems and Geothermal Heat Pump Systems*. AFIT/GEE/ENV/02M-16. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: HQ ASCESA/CESM.

AIR FORCE COMBAT CLIMATOLOGY CENTER

Freestrom, Hugh J. *Designing an Algorithm to Predict the Intensity of the Severe Weather Season*. AFIT/GM/ENP/02M-04. Faculty Advisor: Lt Col Ronald P. Lowther, DSN: 785-3636, ext 4546. Sponsor: AFCCC/DOC5.

Randall, Robb M. *Exploration of Teleconnection Indices for Long-range Seasonal Temperature Forecasts*. AFIT/GM/ENP/02M-08. Faculty Advisor: Lt Col Ronald P. Lowther, DSN: 785-3636, ext 4645. Sponsor: AFCCC/DO.

AIR FORCE TECHNICAL APPLICATIONS CENTER

Bell, Aaron J. *Analysis of GPS Satellite Allocation for the United States Nuclear Detonation Detection System (USNDS)*. AFIT/GOR/ENS/02-03. Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325. Sponsor: AFTAC.

Fee, James R. *Updating and Benchmarking a Nuclear Reactor Burn Code*. AFIT/GNE/ENP/02M-02. Faculty Advisor: Lt Col Vincent J. Jodoin, DSN: 785-3636, ext 4506. Sponsor: AFTAC.

Gerts, David W. *Efficient and Accurate Computation of Non-Negative Anisotropic Group Scattering Cross Sections for Discrete Ordinates and Monte Carlo Radiation Transport*. AFIT/DS/ENP/02-4. Faculty Advisor: Dr. Kirk A. Mathews, DSN: 785-3636, ext 4508. Sponsor: AFTAC.

AIR FORCE WEATHER AGENCY

Courtemanche, William E. *Verification and Comparison of Polar MM5 and AFWA MM5 Forecasts over Alaska*. AFIT/GM/ENP/02M-02. Faculty Advisor: Lt Col Michael K. Walters, DSN: 785-3636, ext 4681. Sponsor: AFWA/DNXM.

Evans, Robert W. *Quantification of the Effects of Data Denial and Limitation in MM5 Initialization of Forecast Accuracy*. AFIT/GM/ENP/02M-03. Faculty Advisor: Lt Col Michael K. Walters, DSN: 785-3636, ext 4681. Sponsor: AFWA/DNXM.

Garay, David A. *Estimation of Atmospheric Precipitable Water Using the Global Positioning System*. AFIT/GE/ENG/02M-07. Faculty Advisor: Maj John F. Raquet, DSN: 785-3636, ext 4580. Sponsor: Air Force Weather Agency (AFWA) Tech. Trans. Team.

Lacroix, Kevin W. *Application of the Wind Gust Estimate and Comparison to the AFWA MM5 Wind Gust Algorithm*. AFIT/GM/ENP/02M-05. Faculty Advisor: Lt Col Michael K. Waltes, DSN: 785-3636, ext 4681. Sponsor: AFWA/DNXT.

Visser, Harmen P. *Suitability of Unidat Metapps for Incorporation in Platform-Independent User-Customized Aviation Weather Products Generation Software*. AFIT/GM/ENP/02M-09. Faculty Advisor: Lt Col Timothy M. Jacobs, DSN: 785-6565, ext 4279. Sponsor: AFWA/DNXT.

Vollmer, Patricia A. *GPS-Deprived Precipitable Water Compared with the Air Force Weather Agency's MM5 Model Output*. AFIT/GM/ENP/02M-11. Faculty Advisor: Maj Gary R. Huffines, DSN: 785-3636, ext 4511. Sponsor: AFWA/DNXT.

3.3.10 USAF DIRECT REPORTING UNITS

AIR FORCE COMMUNICATION AGENCY

Rapallo, James R. *A Direct Sequence Code Division Multiple Access Local Area Network Model*. AFIT/GE/ENG/02M-22. Faculty Advisor: Maj Rusty O. Baldwin, DSN: 785-3636, ext 4612. Sponsor: AFCA/ITAL.

Schwamb, Timothy M. *Performance Analysis of a Dynamic Bandwidth Allocation Algorithm in a Circuit-Switched Communications Network*. AFIT/GCS/ENG/02M-07. Faculty Advisor: Maj Rusty O. Baldwin, DSN: 785-3636, ext 4612. Sponsor: AFCA/ITAL.

AIR FORCE OPERATIONAL TEST AND EVALUATION CENTER

Dupont, Noel J. *A Recommendation of Statistical Analysis for Test and Evaluation*. AFIT/GOR/ENS/02-06. Faculty Advisor: Capt Stephen P. Chambal, DSN: 785-6565, ext 4314. Sponsor: AFOTEC, Detachment 2.

Rodriguez, June D. *Modeling Information Flow During Information Assurance Testing*. AFIT/GOR/ENS/02-16. Faculty Advisor: Capt Stephen P. Chambal, DSN: 785-6565, ext 4314. Sponsor: AFOTEC/FS Detachment 4.

3.3.11 ARMY

Bertulis, Todd S. *Interim Brigade Combat Team (IBCT) Munitions Distribution Study*. AFIT/GLM/ENS/02-02. Faculty Advisor: Lt Col J. O. Miller, DSN: 785-6565, ext 4326. Sponsor: CASCOM, DCD-CSS.

3.3.12 DEPARTMENT OF DEFENSE

Botkin, Brian J. *An Analysis of Alternate Fuel Delivery Methods for the Central Europe Pipeline System*. AFIT/GLM/ENS/02-03. Faculty Advisor: Col William P. Nanry, USA, DSN: 785-6565, ext 4339. Sponsor: Defense Energy Support Center (DESC/FL).

Klimack, William K. *Robustness of Multiple Objective Decision Analysis Preference Functions*. AFIT/DS/ENS/02-01. Faculty Advisors: Dr. Kenneth W. Bauer, Jr., and Dr. Jack Kloeber, DSN: 785-6565, ext 4328. Sponsor: US Military Academy.

Overstreet, Robert E. *Process Mapping a Diminishing Manufacturing Sources and Materiel Shortages Reactive Management Strategy: A Case Study*. AFIT/GLM/ENS/02-13. Faculty Advisor: Lt Col Stephen M. Swartz, DSN: 785-6565, ext 4284. Sponsor: DMS Policy and Operations Office.

Skipper, Joseph B. *An Optimization of the Hub-and-Spoke Distribution Network in United States European Command*. AFIT/GLM/ENS/02-17. Faculty Advisor: Dr. William A. Cunningham, III, DSN: 785-6565, ext 4283. Sponsor: Theater Distribution Management Cell.

Trapp, Bethann. *Evaluation and Mission-Specific Optimization of Satellite Packet Telemetry Protocol for Use on DoD Flight Test Ranges*. AFIT/GE/ENG/02M-26. Faculty Advisor: Dr. Gregg H. Gunsch, DSN: 785-6565, ext 4281. Sponsor: ARTM Joint Program Office.

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Alabacak, Cengiz. *Ultra Wide Band (UWB) Technology for an Indoor Geolocation and Physiological Monitoring System*. AFIT/GE/ENG/02-01. Faculty Advisor: Lt Col Mikel M. Miller, DSN: 785-7777, ext 3295. Sponsor: DARPA Special Project Office.

Punches, Craig A. *A Large Scale Integer Linear Program as a Decision Support Tool for Force Mix Selection*. AFIT/GLM/ENS/02-15. Faculty Advisor: Lt Col Stephen M. Swartz, DSN: 785-6565, ext 4284. Sponsor: DARPA/ISO.

DEFENSE THREAT REDUCTION AGENCY

McNabb, Suzanna J. *A Multi-Isotope Comparison Technique for the Correction of Fractionated Nuclear Debris*. AFIT/GNE/ENP/02M-05. Faculty Advisor: Lt Col Vincent J. Jodoin, DSN: 785-3636, ext 4506. Sponsor: Defense Threat Reduction Agency.

Plante, Dirk E. *A Study of the Hazard Prediction and Assessment Capability (HPAC) Software's Ability to Predict Nuclear Reactor Accidents Using the Chernobyl Accident*. AFIT/GNE/ENP/02M-06. Faculty Advisor: Lt Col Vincent J. Jodoin, DSN: 785-3636, ext 4506. Sponsor: Defense Threat Reduction Agency.

Suriano, Mark A. *Short and Independent Characteristic Methods for Discrete Ordinates Radiation Transport with 2D and 3D Regular Cartesian Meshes*. AFIT/DS/ENP/02-1. Faculty Advisor: Dr. Kirk A. Mathews, DSN: 785-3636, ext 4508. Sponsor: DTRA/CSNP-LANL (Defense Threat Reduction Agency).

Viar, William T. *Modeling an Improvised Nuclear Device in an Urban Environment*. AFIT/GNE/ENP/02M-07. Faculty Advisor: LTC James Petrosky, DSN: 785-3636, ext 4800. Sponsor: DTRA.

Zalewski, Daniel E. *Assessment of the Effects of Entrainment and Wind Shear on Nuclear Cloud Rise Modeling*. AFIT/GNE/ENP/01M-06. Faculty Advisor: Lt Col Vincent J. Jodoin, DSN: 785-3636, ext 4506. Sponsor: Defense Threat Reduction Agency.

OFFICE OF SECRETARY OF DEFENSE

Brown, Thomas W. *Forecasting Research and Development Program Budgets Using the Weibull Model*. AFIT/GAQ/ENC/02M-01. Faculty Advisor: Maj Edward D. White III. Sponsor: OSD PA&E (RA).

USSTRATCOM

Jones, Andrew C. *An Analysis of Airfield Throughput at Elemendorf Air Force Base Using the Airfield Simulation Tool*. AFIT/GLM/ENS/02-07. Faculty Advisor: Dr. William Cunningham, DSN: 785-6565, ext 4283. Sponsor: USTRANSCOM, J5AI.

3.3.13 NATIONAL SECURITY AGENCY

Renfro, Robert S. *Modeling and Analysis of Social Networks*. AFIT/DS/ENS/01-03. Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325. Sponsor: NSA and NAIC.

Senturk, Hakan. *Performance Evaluation of Hyperbolic Position Location Technique in Cellular Wireless Networks*. AFIT/GCE/ENG/02M-03. Faculty Advisor: Maj Rusty O. Baldwin, DSN: 785-3636, ext 4612. Sponsor: ANSA/IR5.

Scott, Matthew A. *Modeling and Analysis of Multicommodity Network Flows via Goal Programming*. AFIT/GOR/ENS/02-17. Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325. Sponsor: NSA.

Tekinceer, N. Kaan. *Development of an Algorithm for Protocol Service Discovery in Wireless Networks*. AFIT/GCS/ENG/02M-04. Faculty Advisor: Maj Rusty O. Baldwin, DSN: 785-3636, ext 4612. Sponsor: NSA.

3.3.14 DEPARTMENT OF ENERGY

Ellering, Christine P. *The Combined Effects of Freestream Turbulence, Pressure Gradients, and Surface Roughness on Turbine Aerodynamics*. AFIT/GAE/ENY/02-5. Faculty Advisor: Maj Jeffrey P. Bons, DSN: 785-3636, ext 4327. Sponsor: DOE/SCIES.

3.3.15 DEPARTMENT OF HOMELAND SECURITY

US COAST GUARD

Gilbride, Timothy J. *An Empirical Investigation of Critical Factors Affecting the Ability of Public Entities to Compete in Public Private Competitions*. AFIT/GAQ/ENV/02M-09. Faculty Advisor: Lt Col Bradley J. Ayers, DSN: 785-3636, ext 4798. Sponsor: U.S. Coast Guard (AR&SC).

3.3.16 NATIOANL AIR AND SPACE ADMINISTRATION (NASA)

MacNicol, John H. *A Study of Satellite Navigation, Dilution of Precision, and Positioning Techniques for Use On and Around the Moon*. AFIT/GE/ENG/02M-15. Faculty Advisor: Maj John Raquet, DSN: 785-3636, ext. 4580. Sponsor: NASA Glenn Research Center.

3.3.17 DAYTON AREA GRADUATE STUDIES INSTITUTE

*Campbell, Matthew L. *Cell Modeling*. AFIT/GAM/ENC/02M-01. Faculty Advisor: Dr. Dennis W. Quinn, DSN: 785-6565, ext 4522. Sponsor: AFOSR and DAGSI.

Maple, Raymond C. *Adaptive Harmonic Balance Method for Unsteady, Nonlinear, One-Dimensional Periodic Flows*. AFIT/DS/ENY/02-2. Faculty Advisor: Dr. Paul I. King, DSN: 785-3636, ext 4628. Sponsor: DAGSI.

3.3.18 NORTH ATLANTIC TREATY ORGANIZATION

Calikoglu, Baris. *Evaluation and Analysis of Array Antennas for Passive Coherent Location Systems*. AFIT/GE/ENG/02M-02. Faculty Advisor: Dr. Andrew J. Terzuoli, Jr., DSN: 785-3636, ext 4717. Sponsor: NATO C3 Agency.

Guner, Abdulkadir. *Ambiguity Function Analysis and Direct-Path Signal Filtering of the Digital Audio Broadcast (DAB) Waveform for Passive Coherent Location (PCL)*. AFIT/GE/ENG/02M-09. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: NATO C3 Agency.

Ozcetin, Ahmet. *Analysis of Sophisticated Direction of Arrival (DOA) Estimation Techniques in PCL Systems*. AFIT/GE/ENG/02M-18. Faculty Advisor: Dr. Andrew J. Terzuoli, Jr., DSN: 785-3636, ext. 4717. Sponsor: NATO C3 Agency.

Say, Kerim. *Statistical Error Analysis of a DOA Estimator for a PCI System Using the CRAMER-RAO Bound Theorem*. AFIT/GE/ENG/02M-23. Faculty Advisor: Maj Roger L. Claypoole, Jr., DSN: 785-3636, ext 4625. Sponsor: NATO C3 Agency.

3.3.19 ARGENTINE AIR FORCE MATERIEL COMMAND

DiRisio, Hugo Gustavo. *Method for Selecting the Right Air Force Supplier*. AFIT/GLM/ENS/02-04. Faculty Advisor: Lt Col Stephan P. Brady, 785-6565, ext 4284. Sponsor: Argentine AF Materiel Command.

3.3.20 KOREAN AIR FORCE

Kim, Jung Jin. *Comparative Analysis of Leasing Versus Buying General Purpose Vehicles (Sedan) in the Korean Air Force*. AFIT/GLM/ENS/02-08. Faculty Advisor: Dr. William A. Cunningham, III, DSN; 785-6565, ext 4283. Sponsor: Korean Air Force.

3.3.21 TURKISH AIR FORCE

Ilbas, Ahmet. *Offsets in International Weapons Acquisitions: The Turkish Experience*. AFIT/GLM/ENS/02-06. Faculty Advisor: Lt Col Stephen Swartz, DSN: 785-6565, ext 4284. Sponsor: Turkish Air Force.

3.3.22 STAR TECHNOLOGY AND RESEARCH, INC.

San, Hakan. *Orbital Maneuvering Using Electrodynamic Tethers*. AFIT/GA/ENY/02-3. Faculty Advisor: Dr. Steven G. Tragesser, DSN: 785-6565, ext 4286. Sponsor: Star Technology and Research, Inc.

3.3.23 SHEET DYNAMICS, LTD.

Tuncay, Ayhan. *Stability of a Tethered Satellite Formation About the Likins-Pringle Equilibria*. AFIT/GSO/ENY/02-4. Faculty Advisor: Dr. Steve G. Tragesser, DSN: 785-6565, ext 4286. Sponsor: Sheet Dynamics, Ltd.

3.4 FUNDED RESEARCH PROJECTS

AGNES, Maj GREGORY S., (ENY)

“Experimental Investigation of Active Inflatable Struts,” Sponsor: SAF/FMBMB-AFOY, Funding: \$34,433.

“Smart Structures for Vibration-Suppression of Optical Surfaces,” Sponsor: AFOSR/NA, Funding: \$32,000.

“Modeling of Highly Compliant Space Structures,” Sponsor: AFOSR/NI, Funding: \$23,800.

ANTHENIEN, Capt RALPH A., JR., (ENY)

“Measurements and Modeling of a Highly Accelerated, Combusting Flow,” Sponsor: AFOSR/MOA, Funding: \$18,011.

“Laser Doppler Velocimeter Measurements of the Atmospheric Pressure Ultra Compact Combustor,” Sponsor: AFRL/PRTS, Funding: \$5,000.

BAILEY, WILLIAM F., (ENP)

“AFIT/AFRL Collaboration On High Power Microwave Systems,” Sponsor: AFRL/DE, Funding: \$1,744.

BALDWIN, Maj RUSTY O., (ENG)

“Classification and Analysis of Wireless and Local Area Network Communication,” Sponsor: NSA, Funding: \$30,000.

“Technical Support Air Force Communications Systems Modeling,” Sponsor: AFCA/ITA, Funding: \$78,000.

BAUER, KENNETH W., (ENS)

“Pilot Candidate Selection Method (PCSM) Study,” Sponsor: AETC, Funding: \$3,000.

“Memorandum of Agreement Between Headquarters, Air Combat Command and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Cruise Missile Reliability Study,” Sponsor: ACC, Funding: \$10,000.

“Mathematical Models for Aircraft Diagnostics/Prognostics,” Sponsor: AFOSR/MOA, Funding: \$43,210.

BIROS, Lt Col DAVID P., (ENV)

“Detecting Deception in the Military Infosphere: Improving and Integrating Human Detection Capabilities With Automated Tools,” Sponsor: AFOSR/PIF, Funding: \$20,684.

BLECKMANN, CHARLES A., (ENV)

“Microbial Contamination of Fuels,” Sponsor: AFRL/PRTG, Funding: \$3,000.

BURGGRAF, LARRY W., (ENP)

“Theoretical Calculations of Chemistry and Photoluminescence Spectroscopy for Adsorbates On SiC Clusters and Surfaces,” Sponsor: AFOSR/PIF, Funding: \$18,903.

“Spectroscopy and Kinetics of UO₂ Fuel Oxidation, Hydrolysis and Radiolysis: Application To Radioactive Waste Management,” Sponsor: DOE, Funding: \$100,000.

“Interfaces for Electronic Photonic and Magnetic Polymer Based Materials,” Sponsor: DAGSI, Funding: \$124,165.

“Photothermal Sensor for Multi-Spectral Detection,” Sponsor: SAF/FMBMB-AFOY, Funding: \$1,785.

CANFIELD, Lt Col ROBERT A., (ENY)

“System Design Innovation Using Multi-Disciplinary Optimization and Simulation,” Sponsor: AFOSR/NI, Funding: \$13,921.

“Analytical Certification and Multidisciplinary Integration,” Sponsor: CRADA Salary Fund, Funding: \$20,700.

CHAMBAL, Capt STEPHEN P., (ENS)

“Pilot Candidate Selection Method (PCSM) Follow-On Study,” Sponsor: AETC, Funding: \$14,000.

“C-17 Strategic Brigade Airdrop Simulation and Analysis Follow-On Effort,” Sponsor: CRADA Salary Fund, Funding: \$5,570.

“Optimizing ... Force Protection Initiatives ...the Force Protection Battlelab,” Sponsor: CRADA Salary Fund, Funding: \$5,000.

“Memorandum of Agreement: The Force Protection Battlelab and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Initiative Priority Study,” Sponsor: Force Prot Battlelab, Funding: \$20,000.

CHILTON, Lt Col LAWRENCE K., (ENC)

“Dod High Performance Computing Modernization Office (HPCMO),” Sponsor: HPC Mod Off, Funding: \$36,000.

“Finite Element Methods for Finite Elasticity and Elasto-Plasticity,” Sponsor AFOSR/PIF, Funding: \$1,967.

CLAYPOOLE, Maj ROGER L., (ENG)

“Combined Audio/Video Compression Using Wavelets,” Sponsor: CRADA Salary Fund, Funding: \$16,700.

CUNNINGHAM, WILLIAM A. III (ENS)

“Evaluation of a New Fuel Hydrant System for Pacaf,” Sponsor: AFOSR/PIF, Funding: \$6,000.

DECKRO, RICHARD F., (ENS)

“Analysis and Measures of Networks (JWAC),” Sponsor: JWAC, Funding: \$100,000.

“MOA-Center for Operations Research in NSA,” Sponsor: NSA, Funding: \$20,000.

FRANKE, MILTON E., (ENY)

“Passive and Active Control of Separated and Transitional Flows,” Sponsor: DAGSI, Funding: \$100,038.

GOLTZ, MARK N., (ENV)

“An Analysis of Palladium Catalyzed Transformation of Nitro Aromatic Compounds for Groundwater Treatment,” Sponsor: AFCEE/ERT, Funding: \$10,000.

“In-Situ Bioremediation of Perchlorate in Groundwater,” Sponsor: SERDP, Funding: \$50,000.

“In Situ Bioremediation of Perchlorate in Groundwater,” Sponsor: CRADA Salary Fund, Funding: \$17,100.

“In-Situ Catalytic Groundwater Treatment Using Pd-Catalysts and Horizontal Treatment Wells,” Sponsor: AFRL/MLQD, Funding: \$19,173.

GREINER, Maj MICHAEL A., (ENV)

“Cost Analysis in Support of OSD Program Analysis and Evaluation,” Sponsor: OSD/PA&E, Funding: \$20,000.

GRIFFIS, Maj STANLEY E., (ENS)

“Advanced Supply Chain Technology Systems Evaluation,” Sponsor: CRADA Salary Fund, Funding: \$20,000.

GUNSCH, GREGG H., (ENG)

“Wireless Area Detection Enclosure,” Sponsor: AFRL/IFGC, Funding: \$5,000.

“Synthesizing Trust Assessments of Artifact and Human Perceptions of Strategically,” Sponsor: AFOSR/PIF, Funding: \$45,216.

GUSTAFSON, STEVEN C., (ENG)

“Low Voltage NLO Polymer Photonics,” Sponsor: DAGSI, Funding: \$14,615.

“Target-Shadow Discriminator,” Sponsor: AAC/WMGF, Funding: \$14,131.

HARITOS, GEORGE K., (ENY)

“Matrix-Enabled Damage Tolerance in Oxide CFCCs,” Sponsor: AFOSR/NA, Funding: \$51,302.

HENGHELD, ROBERT L., (ENP)

“Mid-Infrared Hot Electron Luminescence to Determine Quantum Well Dispersion Relations in Semiconductor Laser Structures for Infrared Countermeasures,” Sponsor: AFOSR/PIF, Funding: \$94,800.

“Mid-Infrared Quantum Well Optoelectronics Devices,” Sponsor: DAGSI, Funding: \$401,426.

HILL, Lt Col RAYMOND R., (ENS)

“Air Force Standard Analysis Toolkit (AFSAT) Support,” Sponsor: AF/XOC, Funding: \$64,580.

“Agent Modeling for Defense Modeling and Simulation,” Sponsor: DMSO, Funding: \$50,000.

HUFFINES, Maj GARY R., (ENP)

“Electromagnetic Interference by High Power Electric Pulses Theoretical and Experimental Simulation and Analysis for Aerospace,” Sponsor: DAGSI, Funding: \$36,415.

HUGHSON, Lt Col MONTGOMERY C., (ENY)

“High-Speed Nozzle Shaping Using Pulse Injection Flow Control,” Sponsor: AFRL/VASD, Funding: \$10,000.

“Analysis of Choking Effects for Lattice Fin Configurations,” Sponsor: AFRL/MNAV, Funding: \$10,000.

JACOBS, Lt Col TIMOTHY M., (ENG)

“Visualization of Collaborative Software Systems,” Sponsor: AFOSR/MOA, Funding: \$54,011.

“Agent Development Environments for Large-Scale, Multi-Agent, Distributed Mission Planning and Execution in Complex Dynamic Environment,” Sponsor: AFOSR/PIF, Funding: \$21,994.

JACQUES, Lt Col DAVID R., (ENY)

“Design and Analysis of Active Flow Control,” Sponsor: AFRLVA, Funding: \$15,000.

“Cooperative Behavior and Control for Autonomous Munitions,” Sponsor: AFRL/MN, Funding: \$10,000.

“Unmanned Aerospace Vehicles,” Sponsor: DAGSI, Funding: \$61,757.

“Cooperative Behavior and Control for Autonomous Munitions,” Sponsor: AFRL/MN, Funding: \$1,022.

“Unmanned Aerospace Vehicle,” Sponsor: AFRL/NACA, Funding: \$15,000.

JODOIN, Lt Col VINCENT J., (ENP)

“AF Nuclear Weapons and Counterproliferation Agency Support,” Sponsor: OO-ALC/LGMMPR, Funding: \$25,000.

KHAROUFEH, JEFFREY P., (ENS)

“The Modeling and Analysis of Link and Path Travel Times,” Sponsor: CRADA Salary Fund, Funding: \$9,667.

KING, PAUL I., (ENY)

“Analysis of the Application of a Triggered Isomer Heat Exchanger As a Replacement for the Combustion Chamber in an Off-the-Shelf Turbojet Engine,” Sponsor: AFOSR, Funding: \$11,620.

“Pulse Detonation Wave Propagation Through a Tube Array,” Sponsor: AFRL/PRF, Funding: \$7,580.

“A Dimple Array for Control of Turbine Vane Separation At Low Reynolds Number,” Sponsor: AFRL/PRT, Funding: \$5,000.

“Analysis of Dynamic Stability of Aerolastic Systems With Uncertainties,” Sponsor: AFRL/VASD, Funding: \$14,000.

“IPA-Dr. Subramanian,” Sponsor: AFRL/PRF, Funding: \$28,081.

“Propagating Potential Disturbances in Turbomachinery,” Sponsor: AFOSR, Funding: \$16,942.

KLADITIS, Capt PAUL E., (ENG)

“Radiation Effects on MEMS Actuators and Sensors,” Sponsor: CRADA Salary Fund, Funding: \$19,900.

“Passive Reversible Binary Mechanical Logic Gates,” Sponsor: CRADA Salary Fund, Funding: \$38,117.

“MEMS RF Alloy Contact Switches and Symbiotic Packaging,” Sponsor: AFRL/MLB, Funding: \$40,000.

LAMONT, GARY B., (ENG)

“Radar Signal Processing Within the Signal/Image Processing (SIP) Computational Technology Area Under the High Performance Computing Modernization Office (HPCMO) CHSSI Program,” Sponsor: AFRL/IFTC, Funding: \$60,000.

LaPUMA, Col PETER T., (ENV)

“Bioavailability of Chromate-Containing Primers Paints,” Sponsor: AFRL/MLF, Funding: \$13,415.

LOTT, Lt Col JAMES A., (ENG)

“Micro-Electro-Mechanical (MEM) Tunable Optoelectronic Devices for Military Systems,” Sponsor: Sandia National Lab., Funding: \$37,409.

“Tunable 1.55 um Quantum Dot Vertical Cavity Surface Emitting Lasers,” Sponsor: AFOSR/MOA, Funding: \$28,469.

“Tunable Microcavity Lasers for High-Bandwidth Optical Communications,” Sponsor: AFOSR/MOA, Funding: \$20,466.

MAGEE, Maj ERIC P., (ENG)

“Atmospheric Propagation ...Modeling, Simulation, Tracking and Control,” Sponsor: CRADA Salary Fund, Funding: \$23,000.

“Airborne Laser Atmospheric Compensation and Tracking Concepts,” Sponsor: AFRL/DEBA, Funding: \$2,882.

MALL, SHANKAR, (ENY)

“High-Cycle Fretting Fatigue,” Sponsor: AFRL/ML, Funding: \$64,367.

“Fretting Fatigue Studies,” Sponsor: AFRL/MLLN, Funding: \$150,000.

“Fretting Fatigue Crack Initiation Mechanism,” Sponsor: AFOSR/MOA, Funding: \$9,866.

“Micro and Nano Scale System: The Tribology of Multifunctional Composite Coatings,” Sponsor: DAGSI, Funding: \$78,574.

“Effects of Moisture On the Mechanical Behavior of Fabric-Reinforced Ceramic Matrix Composites,” Sponsor: AFRL/PRTC, Funding: \$30,000.

MARCINIAK, Lt Col MICHAEL A., (ENP)

“Amorphous and Thin-Film CuIn1-xSe2 (CIGS) Solar Cell Research,” Sponsor: AFRLVSSV, Funding: \$10,000.

MATHIAS, Maj KARL S., (ENG)

“Composable Simulation Technologies Research,” Sponsor: DMSO, Funding: \$50,000.

“Image Exploitation Using Hybrid Information Retrieval Systems,” Sponsor: AFOSR/MOA, Funding: \$26,592.

McAREE, Maj PAUL W., (ENS)

“Air Force Reserve Force Structure Studies,” Sponsor: CRADA Salary Fund, Funding: \$15,000.

“Analysis of Efficiencies for Centralization of Air Force Tuition Assistance,” Sponsor: HQ USAF/DPFPT, Funding: \$9,472.

MILLER, Lt Col MIKEL M., (ENG)

“MEMS Gyro and Direct Correlator Output Processing GPS Receiver,” Sponsor: AFRL/SNAR, Funding: \$12,000.

“Tight Integration of Inertial Measurement Unit (IMU) and Global Positioning System (GPS) Receivers for Autonomous Vehicle Guidance, Navigation, and Control,” Sponsor: AFSOR, Funding: \$13,843.

“746th Support, Research and GNC Laboratory Upgrades,” Sponsor: 476 TS, Funding: \$30,000.

“Ultra-Wide-Band Indoor Geolocation Research Capabilities,” Sponsor: 46th TG/XPR, Funding: \$15,000.

MILLER, J. O., (ENS)

“Adaptive Interfaces,” Sponsor: DAGSI, Funding: \$9,888.

MOORE, JAMES T., (ENS)

“Application of Metaheuristics To Air Force Problems,” Sponsor: AFOSR/NM, Funding: \$67,950.

OXLEY, MARK E., (ENC)

“Model-Based Object Recognition Using Multiple Sensor Modalities and Invariant Techniques,” Sponsor: DAGSI, Funding: \$73,000.

“A Reductionist Approach To Process Discovery,” Sponsor: AFOSR, Funding: \$9,116.

“The Fusion of Multiple Classifiers,” Sponsor: AFRL, Funding: \$19,189.

PACHTER, MEIR N., (ENG)

“Cooperative Behavior and Control for Autonomous Munitions,” Sponsor: AFRL/MNGN, Funding: \$10,000.

“Unmanned Aerospace Vehicle,” Sponsor: AFRL/NACA, Funding: \$15,000.

“Advanced Target Tracking Research,” Sponsor: AFRL/SNAT, Funding: \$15,000.

“Satellite Formation Flight Control,” Sponsor: AFOSR/PIF, Funding: \$8,546.

PALAZATTO, ANTHONY N., (ENY)

“Model Aided Damage Detection in Composite Structures,” Sponsor: AFRLVA, Funding: \$64,000.

“Numerical Investigation of the Gouging Phenomenon Within A Hypersonic Rail-Sled Assembly,” Sponsor: AFOSR/NM, Funding: \$97,231.

“Intergovernmental Personnel Act - Dr. Lanning (May-Aug 02),” Sponsor: AFRL/MLLN, Funding: \$34,903.

“Evaluation of Coatings Applied To a Dummy Blade,” Sponsor: AFRL/PR, Funding: \$20,000.00.

“Development of a Novel Method for Evaluating Material Behavior Under Turbine Engine Operating Conditions,”
Sponsor: DAGSI, Funding: \$83,098.00.

“2001 IPA Lanning Records Reconstruction,” Sponsor: AFRL/MLF, Funding: \$38,378.40.

PERRAM, GLEN P., (ENP)

“Spectral Signatures From Conventional Munitions. II. Kinetics of Bomb Detonations,” Sponsor: SAF/FMBMB-AFOY, Funding: \$13,832.

“High-Temperature Superconducting Wires for Power Generation: Pulsed Laser Deposition Plume Dynamics,”
Sponsor: AFOSR/PIF, Funding: \$28,365.

“FTIR Remote Sensing of TNT Detonations,” Sponsor: AFTAC/TA, Funding: \$5,000.

“High Energy Laser Weapons: Modeling and Simulation,” Sponsor: HEL JTO, Funding: \$420,000.

“Closed Cycle Chemical Laser: Electricoil,” Sponsor: AFOSR/NL, Funding: \$49,892.

“Small Business Innovation Research for the Missile Defense Agency,” Sponsor: AFRL, Funding: \$10,000.

“High Temperature Superconducting Wires for Power Generation. Pulsed Laser Deposition Plume Dynamics,”
Sponsor: CRADA Salary Fund, Funding: \$11,439.

“Saturation Laser Spectroscopy for Measuring the Spatially-Resolved Temperature in the Supersonic Nozzle of a Chemical Oxygen-Iodine Laser,” Sponsor: AFOSR/NI, Funding: \$26,374.

PETROSKY, LTC JAMES C., (ENP)

“Analysis of Radiation Detectors,” Sponsor: DRTA, Funding: \$40,000.

“Studies and Educational Activities in Applied Nuclear Sciences,” Sponsor: DTRA, Funding: \$90,000.

“Characterization of Radiation Effects on SiC Materials and Devices,” Sponsor: CRADA Salary Fund, Funding: \$8,284.

“Studies On the Effects of Nuclear Environments On Equipment and Personnel,” Sponsor: DTRA, Funding: \$1,647.

QUINN, DENNIS W., (ENC)

“Bioinformatic Support of Toxicogenomics,” Sponsor: AFOSR, Funding: \$31,959.

RAINES, RICHARD A., (ENG)

“Resource Support for the AFIT Center of Academic Excellence in Information Assurance,” Sponsor: NSA, Funding: \$15,400.

“AFIT/ENG Wireless Network Laboratory,” Sponsor: AFIWC, Funding: \$20,000.

“Security and Operational Compatibility ... Local Area Networks,” Sponsor: CRADA Salary Fund, Funding: \$30,653.

“Travel to the National Colloquium for Information Systems Security,” Sponsor: CRADA Salary Fund, Funding: \$3,500.

RAQUET, Maj JOHN F., (ENG)

“Optical Aiding of Inertial Navigation Systems,” Sponsor: AFRL/MNGN, Funding: \$20,000.

“Optical Aiding of Inertial Navigation Systems,” Sponsor: CRADA Salary Fund, Funding: \$5,000.

“Lunar Navigation: System Design and Simulation,” Sponsor: NASA, Funding: \$25,898.

REED, Maj TIMOTHY S., (ENV)

“Entrepreneurial Innovation in Acquisition,” Sponsor: CRADA Salary Fund, Funding: \$11,500.

REHG, Maj MICHAEL, (ENV)

“Spectrum Management and the Global Positioning System: A Case Study in Interagency Coordination,” Sponsor: SMC/CZE, Funding: \$2,500.

ROH, WON B., (ENP)

“Laser Brightness Scaling Using Fiber Raman Beam Cleanup and Combining,” Sponsor: CRADA Salary Fund, Funding: \$20,000.

“High-Power, Efficient, Diode-Pumped Fiber Lasers for Air Force Applications,” Sponsor: AFOSR/PIF, Funding: \$40,000.

SCOTT, Maj MICHAEL B., (ENP)

“Characterization of Laser Annealing Effects in Ion Implanted n-Type SiC,” Sponsor: CRADA Salary Fund, Funding: \$4,469.

SPENNY, CURTIS H., (ENY)

“Command and Control of Remotely Operated Vehicles,” Sponsor: DAGSI, Funding: \$89,036.

TEMPLE, MICHAEL A., (ENG)

“Technical Support, Radar/Target Identification Systems,” Sponsor: AFRL/SNAS, Funding: \$15,000.

“Technical Support, AFRL/SNR,” Sponsor: AFRL/SN, Funding: \$60,000.

“Evaluation of Interference Between GPS and Radar Systems,” Sponsor: SMC/CZPF, Funding: \$20,000.

TRAGRESSER, STEVEN G., (ENY)

“Microsatellite Rendezvous With Non-Cooperative Targets,” Sponsor: NAIC, Funding: \$17,350.

TUTTLE, RONALD F., (ENP)

“Innovative Measurement and Signature Intelligence (MASINT) ...,” Sponsor: CRADA Salary Fund, Funding: \$2,776.

“Radiance and Atmospheric Transmission Advanced Modeling,” Sponsor: SAF/FMBMB-AFOY, Funding: \$150,000.

WEEKS, DAVID E., (ENP)

“Nonadiabatic Molecular Reaction Dynamics of B + H₂,” Sponsor: AFOSR/PIF, Funding: \$30,480.

WILEY, Capt VICTOR D., (ENS)

“Advanced Assignment and Scheduling Concepts,” Sponsor: CRADA Salary Fund, Funding: \$8,000.

WOOD, AIHUA K., (ENC)

“Scattering and Propagation of Electromagnetic Waves,” Sponsor: AFOSR/PIF, Funding: \$60,932.

“Hybrid Maxwell Solver for Wide-Band Radar Signature Prediction for LO Targets,” Sponsor: DAGSI, Funding: \$139,387.

“The Stability of Three-Dimensional Electromagnetic Computations Using Time-Domain Hybrid Methods,”
Sponsor: AFOSR/MOA, Funding: \$26,542.

YEO, YUNG KEE, (ENP)

“Influence of Arsenic Doping On the Electrical and Optical Properties of GAN,” Sponsor: AFOSR/PIF, Funding: \$53,908.

“SiC an SiO₂/SiC Characterization for Device Applications,” Sponsor: AFOSR/MOA, Funding: \$27,310.

“Intrinsic and Extrinsic Energy Level Studies in GAN,” Sponsor: AFOSR/PIF, Funding: \$197,118.

“Intrinsic and Extrinsic Energy Level Studies in GaN,” Sponsor: CRADA Salary Fund, Funding: \$20,000.

3.5 REFEREED JOURNAL PUBLICATIONS

[*Denotes multiple faculty authors.]

AGNES, GREGORY S., (ENY)

Agnes, G. S. and D. J. Inman. "Performance of Nonlinear Vibration Absorbers for N-Degree-of-Freedom Systems using Nonlinear Normal Modes," *Nonlinear Dynamics*, (2002).

*Wagner J., G. S. Agnes and E. Magee. "Optical Metrology of Adaptive Membrane Mirrors," *Journal of Intelligent Materials, Systems and Structures*, (2002).

BIROS, Lt Col DAVID P., (ENV)

Biros, D. P., J. F. George, and R. W. Zmud. "Inducing Sensitivity into Deception in Order to Improve Decision Making Performance: A Field Study," *MIS Quarterly*, 26 (2): 119-144 (June 2002).

BAKER, WILLIAM P., (ENC)

*Baker, William P., Anthony N. Palazotto, and David J. Laird. "Thermal Diffusion and Associated Stress Field due to High Speed Source," *Journal of Aerospace Engineering*, 15 (3): 118-124 (2002).

BALDWIN, Maj RUSTY O., (ENG)

*Thomas, R. W., R. A. Raines, R. O. Baldwin, and M. A. Temple. "Performance Analysis of Multicast Protocols for Mobile Satellite Communication Networks," *Computer Communications Journal, Special Issue on Advances in Performance Evaluation of Computer and Telecommunications Networking Invited Submission*, 25 (11-12): 1085-1093 (July 2002).

BAUER, KENNETH W., JR., (ENS)

*Bauer, Kenneth W., S. G. Alsing, and J. O. Miller. "A Multinomial Procedure for Evaluating Pattern Recognition Algorithms," *Pattern Recognition*, 35 (11): 2397-2412 (2002).

East, J. A., Kenneth W. Bauer, and J. W. Lanning. "Feature Selection for Predicting Pilot Mental Workload: A Feasibility Study," *International Journal of Smart Engineer System Design*, 4: 183-193 (2002).

Laine, T. I, Kenneth, W. Bauer, J. W. Lanning, C. A. Russell, and G. F. Wilson. "Selection of Input Features Across Subjects for Classifying Crewmember Workload using Artificial Neural Networks," *IEEE Transactions on Systems, Man, and Cybernetics Part A: Systems and Humans*, (19 September 2002).

BLECKMANN, CHARLES A., (ENV)

Beeman, R. E. and C. A. Bleckmann. "Sequential Anaerobic-Aerobic Treatment of a Halogenated Organic Contaminated Aquifer: Field Results," *Journal of Contaminant Hydrology*, 57: 147-159 (August 2002).

*Shelley, Michael L., W. Brent Nixon, Charles A. Bleckmann, Philip A. Colborn, and Brian D. Benter. "Dynamic Simulation of Landfill Waste Stabilization," *ASCE Journal of Environmental Engineering*, 127 (12): 1100-1110 (December 2001).

BRADY, Lt Col STEPHAN P., (ENS)

*Brady, Stephan P. and William A. Cunningham. "Exploring Predatory Pricing in the Airline Industry," *Transportation Journal*, (Fall 2001).

BURGGRAF, LARRY W., (ENP)

*Duan X., L. W. Burggraf, D. E. Weeks, G. E. Davico, R. L. Schwartz, and W. C. Linberger. "Photoelectron Spectroscopy of Si_2C_3^- and Quantum Chemistry of the Linear Si_2C_3 Cluster and its Isomers," *J. Chem. Phys.* 116: 3601-3611 (2002).

Evans, Brian L., Jeffrey B. Martin, Larry W. Burggraf, et al. "Demonstration of Energy-Coded Compton Scatter Tomography with Fan Beams for One-sided Inspection," *Nuclear Instruments and Methods in Physics Research*, A480 (2): 797 (2002).

CHAMBAL, Capt STEPHEN P., (ENS)

*Beauregard, J. (MS Student), Stephen Chambal, and Richard F. Deckro. "Modeling Information Assurance: An Application," *Military Operations Research*, (2002).

Chambal, S., M. Shoviak (MS Student), and A. Thal. "Decision Analysis Methodology to Evaluate Integrated Solid Waste Management Alternatives," *Environmental Modeling and Assessment*, t (October 2001).

CHRISSIS, JAMES W., (ENS)

*Calhoun, Kevin M., Richard F. Deckro, James T. Moore, James W. Chrissis, and John C. Van Hove. "Planning and Re-planning in Project and Production Scheduling," *Omega*, 30 (3): 155-170, (2002).

CUNNINGHAM, WILLIAM A., (ENS)

Cunningham, William A. "The Industry Structure of the Airline Industry Two Decades After Deregulation," *Journal of Transportation Law, Logistics and Policy*, 68 (1) (Fall 2000).

Cunningham, William A. and Jason Masciulli. "MICAP Shipping Policies: Are They Optimal From a Cost Standpoint," *Air Force Journal of Logistics*, (Fall 2001).

Cunningham, William A. "AFIT Graduate Students Tackle Complex Logistics Problems," *Air Force Journal of Logistics*, (Fall 2001).

Cunningham, William A. and Justin W. Lavadour. "Pitfalls of the A-76 Process," *Air Force Journal of Logistics*,
NOTE: Winner of most significant article for the issue (Winter 2001).

*Cunningham, William A., James A. MacKenna, and Raymond R. Hill. "Determining AGE Levels," *Air Force Journal of Logistics* (Winter 2001).

*Cunningham, William A. and Stephan P. Brady. "Exploring Predatory Pricing in the Airline Industry," *Transportation Journal*, 41 (1), (Fall 2001).

DECKRO, RICHARD F., (ENS)

Burke, Eve, Jack M. Kloeber, Jr., and Richard F. Deckro. "Using and Abusing QFD Scores," *Quality Engineering*,
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Leinart, James A., Richard F. Deckro, Jack M. Kloeber, Jr., and Jack A. Jackson. "A Network Disruption Modeling Tool," *Military Operations Research*, 7 (1): 69- 77 (2002).

Timmerman, Thomas J., Richard F. Deckro, Jack M. Kloeber, Jr., and Jack A. Jackson. "Considering Technological Risks in Modeling Emerging Technologies," *International Journal of Industrial Engineering*, 9 (2): 200-214 (2002).

DELLA-ROSE, Maj DEVIN J., (ENP)

Lai, S. T. and D. J. Della-Rose. "Spacecraft Charging at Geosynchronous Altitudes: New Evidence of the Existence of Critical Temperature," *Journal of Spacecraft and Rockets*, 38 (6): 922-928 (December 2001).

ENGLAND, Maj ELLEN, (ENV)

Clinkenbeard, R., E. England, D. Johnson, N. Esman, and T. Hall. "A Field Comparison of the IOM Inhalable Aerosol Sampler and a Modified 37-mm Cassette," *Applied Occupational and Environmental Hygiene*, 17 (9): 622-627 (September 2002).

Fitch, M. and E. England. "Radionuclide Leaching from Residual Soils: Screening Study," *Practice Periodical of Hazardous, Toxic and Radioactive Waste*, 6 (3) (January 2002).

Fitch, M. and E. England. "Biological Fixed Film Systems," *Water Environment Research*, 81 (5) (September/October 2001).

GOLTZ, MARK N., (ENV)

Cho, H. H., J. Y. Choi, M. N. Goltz, and J. W. Park. "Combined Effect of Natural Organic Matter and Surfactants on the Apparent Solubility of Polycyclic Aromatic Hydrocarbons," *Journal of Environmental Quality*, 31: 275-279 (2002).

Christ, J. A. and M. N. Goltz. "Hydraulic Containment: Analytical and Semi-Analytical Models for Capture Zone Curve Delineation," *Journal of Hydrology*, 262: 224-244 (2002).

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GREINER, Maj MICHAEL A., (ENV)

Greiner, Michael A., Kevin J. Dooley, Dan L. Shunk, and Ross T. McNutt. "An Assessment of Air Force Development Portfolio Management Practices," *Acquisition Review Quarterly*, 9 (2): 117-142 (2002).

GUNSCH, GREGG H., (ENG)

*Harmer, P., P. Williams, G. Gunsch, and G. Lamont. "An Artificial Immune System Architecture for Computer Security Applications," *IEEE Transactions on Evolutionary Computation, Special Issue on Artificial Immune Systems*, 6 (3): 255-280 (June 2002).

*Noel, G., S. C. Gustafson, and G. H. Gunsch. "Network-Based Anomaly Detection Using Discriminant Analysis," *Journal of Information Warfare*, 1: 12-22 (December 2001).

GUSTAFSON, STEVEN C., (ENG)

Huether, B. M., S. C. Gustafson, and R. P. Broussard. "Wavelet Pre-Processing for High Range Resolution Radar Classification," *IEEE Transactions on Aerospace and Electronic Systems*, 37: 1321-1332 (October 2001).

*Noel, G., S. C. Gustafson, and G. H. Gunsch. "Network-Based Anomaly Detection Using Discriminant Analysis," *Journal of Information Warfare*, 1 (1): 12-22 (December 2001).

HALE, Capt TODD B., (ENG)

*Hale, T., M. Temple, M. Wicks, J. Raquet, M. Oxley. "Performance Characterization of a Hybrid STAP Architecture Incorporating Elevation Interferometry," *IEEE Proceedings on Radar, Sonar and Navigation*, 149 (2): 77-82 (April 2002).

HEMINGER, ALAN R., (ENV)

Kolekofski, Keith E., Jr. and Alan R. Heminger. "Beliefs and Attitudes Affecting Intentions to Share Information in an Organizational Setting," *Information and Management*, 201: 1-12 (2002).

HENGEGHOLD, ROBERT L., (ENP)

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*Ahoujja M., J. L. McFall, Y. K. Yeo, R. L. Hengehold, and J. E. Van Nostrand. "Electrical and Optical Investigation of MBE Grown Si-doped $\text{Al}_x\text{Ga}_{1-x}\text{N}$ as a Function of Al Mole Fraction up to 0.5," *Mat. Sci. Eng.* B91-92: 285-289 (2002).

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*Fellows J. A., Y. K. Yeo, R. L. Hengehold, and D. Johnstone. "Electrical Activation Studies of GaN Implanted with Si from Low to High Dose," *Appl. Phys. Letters*, 80: 1930-1932 (2002).

*Johnstone D., M. Ahoujja, Y. K. Yeo, R. L. Hengehold, and L. Guido. "Deep Centers and Their Capture Barriers in MOCVD-Grown GaN," *Mat. Res. Soc. Symp.*, 692 (H2.7): 1-11 (2002).

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HILL, Lt Col RAYMOND R., (ENS)

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Hill, Raymond R. "Process Simulation in Excel for a Quantitative Management Course," *INFORMS Transactions on Education*, 3 (2) (May 2002).

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HOLT, Maj DANIEL T. (ENV)

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KLADITIS, Capt PAUL E., (ENG)

Linderman, R. J., P. E. Kladitis, and V. M. Bright. "Development of the Micro Rotary Fan," *Sensors and Actuators A: Physical*, 95: 135-142 (2002).

LAPUMA, Lt Col PETER T., (ENV)

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McKay J. B., W. B. Roh, and K. L. Schepler. "Extended Mid-IR Tuning of a Cr²⁺:CdSe Laser," *Proceedings of the 2002 Advanced Solid-State Lasers Topical Meeting*, Montreal Canada, 4-7 February 2002.

*Phillips T., G. P. Perram, and W. B. Roh. "Spatially-Resolved Temperature Diagnostic for the Chemical Oxygen-Iodine Laser Based on a Variant of Saturation Spectroscopy," *Proceedings of LASE 2002*, San Jose CA, 20-25 January 2002.

Russell T. H. and W. B. Roh. "Laser Beam Cleanup Using Stimulated Raman Scattering in Fiber," *Proceedings of the 19th Congress of the International Commission of Optics*, Florence Italy, 25-30 August 2002.

Russell T. H. and W. B. Roh. "Laser Brightness Enhancement Using Fiber-Based Stimulated Raman Scattering Beam Cleanup," *Technical Digest of the 2002 SSDLTR*, Albuquerque NM on 3-6 June 2002.

Russell, T. H. and W. B. Roh. "Threshold of the Second Stokes Scattering in a Fiber Stimulated Brillouin Scattering Beam Combiner," *Conference Proceedings of the 2001 LEOS*, San Diego CA, 12-15 November 2001

SHELLEY, MICHAEL L., (ENV)

*Shelley, M. L., M. N. Goltz, J. P. Amon, and A. Agrawal. "Treatment of Chlorinated Aliphatic Contamination of Groundwater by Horizontal Recirculation Wells and by Constructed Vertical Flow Wetlands," *Air Force Institute of Technology Technical Report AFIT-EN-TR-02-05*, Wright-Patterson AFB OH, February 2002.

SPENNY, CURTIS H., (ENY)

*Spenny, C. H. and B. S. Liebst. "Assessment of Motion Devices Used for Spatial Orientation Research and Training," *Proceedings of the NATO HFM Symp. Spatial Orientation in Military Vehicles*, Corona Spain, April 2001.

TEMPLE, MICHAEL A., (ENG)

*Hale, T. B., M. A. Temple, M. C. Wicks, J. F. Raquet, and M. O. Oxley. "Elevation Interferometric STAP Using a Thinned Planar Array," *Proceedings of IEEE 2002 Radar Conference*, pp. 408-414, Long Beach CA, April 2002.

*Klein, R. W., M. A. Temple, R. L. Claypoole, Jr, R. A. Raines, and J. P. Stephens. "Wavelet Domain Communication System (WDCS) Interference Avoidance Capability: Analytic, Modeling and Simulation Results," *Proceedings of the IEEE Military Communications Conference (MILCOM 2001)*, Vol. 2, pp. 1034-1038, McLean VA, October 2001.

*Lee, M. J., M. A. Temple, R. L. Claypoole, Jr., and R. A. Raines. "Transform Domain Communications and Interference Avoidance Using Wavelet Packet Decomposition," *Proceedings of the IEEE Wireless Communications and Network Conference (WCNC 2002)*, Vol. 1, pp. 255-259, Orlando FL, March 2002.

*Meier, C. A., A. J. Terzuoli, Jr., M. A. Temple, and R. F. Tuttle. "PCR System Receiver Location Considering Terrain and Atmospheric Effects," *Proceedings of the Passive and Covert Radar Symposium (PCR 2000)*, Roke Manor UK, June 18-20, 2002.

*Meier, C. A., A. J. Terzuoli, Jr., M. A. Temple, and R. F. Tuttle. "Passive Coherent Location System Receiver Location Considering Terrain and Atmospheric Effects," *Proceedings of the XXVIIth URSI General Assembly*, Maastricht NL, August 17-24, 2002.

*Ozcetin, A., A. J. Terzuoli, Jr., R. L. Claypoole, Jr., S. C. Gustafson, and M. A. Temple. "Sophisticated Direction of Arrival Methods in PCR," *Proceedings of the Passive and Covert Radar Symposium (PCR 2000)*, Roke Manor UK, June 18-20, 2002.

*Thomas, R. W., R. A. Raines, R. O. Baldwin, and M. A. Temple. "Simulation Modeling and Evaluation of Satellite-Based Multicasting Protocols," *Fall 2001 IEEE Vehicular Technology Conference*, Vol. 1, pp. 305-309, Atlantic City NJ, October 2001.

THAL, Lt Col ALFRED E., JR., (ENV)

*Holt, Daniel T., Dennis R. Self, Alfred E. Thal, and Steven W. Lo. "An Empirical Test of the Influence that the Change Message, Employee Participation, and Training have on a Major Organizational Change," *Proceedings of the Annual Meeting of the Southern Management Association*, New Orleans LA, Omnipress, 2001.

TRAGESSER, STEVEN G., (ENY)

*Franke, M. E. and S. G. Tragesser. "Graduate Education in the AFIT Department of Aeronautics and Astronautics," *Proceedings of the 2002 American Society for Engineering Education Annual Conference and Exhibition*, Montreal Quebec, June 2002.

*Tragesser, S. G., G. S. Agnes, and J. Fulton. "SIMSAT: A Ground-Based Platform for Demonstrating Satellite Attitude Dynamics and Control," *Proceedings of the 2002 American Society for Engineering Education Annual Conference and Exhibition*, Montreal Quebec, June 2002.

Tragesser, S. G. and H. San. "Orbital Maneuvering with Electrodynamic Tethers," *AAS/AIAA Spaceflight Mechanics Meeting*, Paper 02-201, San Antonio TX, January 2002.

Tragesser, S. G. and A. Tuncay. "Orbital Design of Earth-Oriented Tethered Satellite Formations," *AIAA/AAS Astrodynamics Specialist Conference*, Monterey CA, August 2002.

TERZUOLI, ANDREW J., JR., (ENG)

Allnutt, R. A. and A. J. Terzuoli, Jr. "Emergency Communications With Near Vertical Incident (NVIS) Skywave Antennas," *Proceedings of the Mediterranean Microwave Symposium 2002*, Caceres Spain, June 26-28, 2002.

Allnutt, R. A. and A. J. Terzuoli, Jr. "Electromagnetic Modeling of Near Vertical Incident (NVIS) Skywave Antennas," *Proceedings of PIERS: Progress in Electromagnetics Research Symposium*, Cambridge MA, July 1-5, 2002.

Calikoglu, B. and A. J. Terzuoli, Jr. "Evaluation and Analysis of Array Antennas for PCR Systems," *Proceedings of the Passive and Covert Radar Symposium (PCR 2000)*, Roke Manor UK, June 18-20, 2002.

Calikoglu, B. and A. J. Terzuoli, Jr. "Evaluation and Analysis of Array Antennas for Passive Radar Systems," *Proceedings of the Mediterranean Microwave Symposium 2002*, Caceres, Spain, June 26-28, 2002.

Calikoglu, B. and A. J. Terzuoli, Jr. "Evaluation and Analysis of Array Antennas for Passive Radar Systems," *Proceedings of PIERS: Progress in Electromagnetics Research Symposium*, Cambridge MA, July 1-5, 2002.

*Calikoglu, B., A. J. Terzuoli, Jr., and R. F. Tuttle. "Evaluation and Analysis of Array Antennas for Passive Coherent Location Systems," *Proceedings of the XXVIIth URSI General Assembly*, Maastricht, NL, August 17-24, 2002

*Meier, C. A., A. J. Terzuoli, Jr., M. A. Temple, and R. F. Tuttle. "PCR System Receiver Location Considering Terrain and Atmospheric Effects," *Proceedings of the Passive and Covert Radar Symposium (PCR 2000)*, Roke Manor UK, June 18-20, 2002.

*Meier, C. A., A. J. Terzuoli, Jr., M. A. Temple, and R. F. Tuttle. "Passive Coherent Location System Receiver Location Considering Terrain and Atmospheric Effects," *Proceedings of the XXVIIth URSI General Assembly*, Maastricht NL, August 17-24, 2002.

*Ozcecin, A., A. J. Terzuoli, Jr., R. L. Claypoole, Jr., S. C. Gustafson, and M. A. Temple. "Sophisticated Direction of Arrival Methods in PCR," *Proceedings of the Passive and Covert Radar Symposium (PCR 2000)*, Roke Manor UK, June 18-20, 2002.

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Pandolfi, R. and A. J. Terzuoli, Jr. "Foreign Passive Radar and Intel Developments," *Proceedings of the 48th Annual Tri-Service Radar Symposium*, Naval Postgraduate School, Monterey CA, June 24-28, 2002.

WARD, Maj MARK A., (ENV)

Garman, Michael and Mark A. Ward. "Public Sector Project Management Critical Success Factors: Towards a Theoretical Framework," *International Business and Economics Research Conference Proceedings*, 2002.

*Mark Grayson, David P. Biros, Mark A. Ward, and H. Chen. "Air Force Organizational Memory Information System: A Computer-mediated Communication Perspective," Forthcoming *IASTED International Conference Series on Information Systems*, Alberta Canada: ACTA Press, 2002.

Ward, Mark A. and Robert W. Povlich, Jr. "The Role of Product Life Cycles in the Productivity Paradox," *International Association for Computer Information Systems 2002 Conference*, 2002.

WEEKS, DAVID E., (ENP)

*Gorski, S. M., M. A. Marciniak, R. L. Hengehold, and D. E. Weeks. "Time Resolved Photoluminescence Spectra of Mid-Infrared Quantum Well Lasers," *Solid State and Diode Laser Technology Review Technical Digest, MIR7*, June 2002.

WIESEL, WILLIAM E., (ENY)

Bordner, Capt Ralph, and Wiesel, William E. "Trajectory Estimation for Satellite Clusters," *AAS/AIAA Astrodynamic Specialists Conference*, (paper AAS 01-339) Quebec City, 30 July 2002.

WOOD, AIHUA W., (ENC)

Fazio, S., L. Hong, and A. Wood. "Reconstructing Rigid Moving Targets Using Structural Kinematics Information from Radar Data," *Proceedings of SPIE*, Boston MA, 2002

*Pascoe, K., W. Wood, P. Maybeck, and A. Wood. "Target Recognition Using Late Time Scattering," *Proceedings of PERS (abstract)*, 469, Cambridge MA, July 2002.

WOOD, Maj WILLIAM D., (ENG)

- *Koper, E., S. Schneider, and W. Wood. "Minimum Antenna Coupling Solutions for Air Force One Using Genetic Algorithms and Hybrid Optimization Techniques," *Proceedings of the 2002 Progress in Electromagnetics Research Symposium*, Boston MA, June 2002.
- *Koper, E. M., S. W. Schneider, W. D. Wood, R. O. Baldwin, and R. R. Hill. "A Genetic Algorithm and Local Search Technique for Minimization of Monopole Coupling on Aircraft by Physical Antenna Placement," *Proceedings of IEEE International Symposium and USNC/URSI National Radio Science Meeting*, San Antonio TX, June 2002.
- *Pascoe, K. J., W. D. Wood, P. S. Maybeck, and A. W. Wood. "Target Recognition Using Late Time Scattering", *Proceedings of the Progress in Electromagnetics Research Symp. (PIERS 2002)*, Cambridge MA, July 2002.
- *Pascoe, K. J., W. D. Wood, P. S. Maybeck, and A. W. Wood. "Target Recognition Via Late Time Scattering," *Proceedings of the 6th Ultra-Wideband Short-Pulse Electromagnetics Conference of the AMEREM 2002 Symposium*, published by Kluwer Academic/Plenum, Annapolis MD, June 2002.
- Simpson, G., W. Wood, and P. Collins. "Electromagnetic Scattering From a Gap in a Magnetodielectric Coating on an Infinite Ground Plane," *Proceedings of the 2002 Progress in Electromagnetics Research Symposium*, Boston MA, June 2002.

3.7 SUBSTANTIAL CONSULTATIONS

[*Denotes duplicate entry, multiple faculty authors.]

BALDWIN, Maj RUSTY O., (ENG)

*Baldwin, R. O., R. A. Raines, and M. A. Temple. "Classification and Analysis of Wireless Personal and Local Area Network Communication Techniques, \$30K, Sponsor: NSA.

*Baldwin, R. O., R. A. Raines, and M. A. Temple. "Communications Systems Modeling and Analysis", \$78K, Sponsor: Air Force Communications Agency.

*Raines, R. A., R. O. Baldwin, and M. A. Temple. "AFIT/ENG Wireless Network Laboratory," \$20K, Sponsor: Air Force Information Warfare Center.

*Raines, R. A., R. O. Baldwin, and M. A. Temple. "Security and Operational Compatibility of Heterogeneous Wireless Local Area Networks", \$30,653, CRDA Salary Funding for Emerging AF Research Thrusts.

BRADY, Lt Col STEPHAN P., (ENS)

Brady, Stephan P. "Investigating the impact of entrepreneurial leadership styles on military supply chains," Research conducted in conjunction with research sponsored by the University of Arkansas. Conducted in association with Dr. Lisa Williams, Garrison Endowed Chair in Supply Chain Management.

CANFIELD, Lt Col ROBERT A., (ENY)

Canfield, Robert A. "Future Potential Technology Developments in the Civil/Military Aeronautics and Aerospace Field," NATO Research and Technology Agency *Aerospace Power: Emergent Technologies Symposium*, Instituto Superior Tecnico, Lisbon, Portugal, July 1-5, 2002.

Canfield, Robert A. Advisory Board for ASTROS*, Sedona Arizona, May 10, 2002.

CLAYPOOLE, Jr., Maj ROGER, (ENG)

Claypoole, Roger L. Consultant, Environmental Security Compliance Technology Program, Environmental Management Directorate, Hill AFB UT.

CUNNINGHAM, WILLIAM A., (ENS)

Cunningham, William A. "An Analysis of Airfield Throughput at Elemendorf Air Force Base Using the Airfield Simulation Tool," sponsored by AFOSR.

DECKRO, RICHARD F., (ENS)

Deckro, Richard F. Member, CNA Weapons Effectiveness Working Group: Chair, Methodology Sub-Group.

DELLA-ROSE, Maj DEVIN J., (ENP)

Della-Rose, Devin J. "Recommendations for New Space Weather Career Track within Air Force Weather" Correspondence with XOWR, HQ USAF, Washington DC. March - June 2002.

FRANKE, MILTON E., (ENY)

Franke, Milton E. ASME International (Committee on Organization and Rules), 14-16 November 2001, 14-16 March 2002, 11-14 June 2002, 20-21 September 2002.

Franke, Milton E. "High-Speed Flow Research," Capt Matthew Zuber, SMC/TL, Aviation Blvd., Lawndale, CA, Mark Taylor, TRW Space Park, Redondo Beach, CA.

Franke, Milton E., William Walter, HYBRICRAFT Technology. Boundary layer research and microelectromechanical systems, MEMS (Dr. K. Ghia, University of Cincinnati, Cincinnati, Oh; Dr. Richard Rivir, AFRL, Wright-Patterson AFB OH; Mike Daniel and Gary Laughlin, AFIT laboratories; and Lt Col Cowan, AFRL, Wright-Patterson AFB OH). Dr. Patrick McDaniel, AFRL, Kirtland AFB NM, Alternate energy source for propulsion. Paper reviews: American Society of Engineering Education and *International Journal of Heat and Mass Transfer*.

GODA, Maj MATTHEW, (ENG)

Goda, M. E. Consultant with the ABL Technology Branch on ABL tracking and compensation, Sponsor: AFRL/DEBS.

GOLTZ, MARK N., (ENV)

Goltz, M. N. AF Center for Environmental Excellence Project Peer Review Team, Griffiss AFB, July 2002.

GROVES, Maj CLARK M., (ENP)

*Groves, Clark M., Raymond R. Hill, and John O. Miller. Substantial consultations with Dr. Francis Quek of Wright State University to establish a collaborative team pursuing a major research grant from the Advanced Research and Development Activity related to exploitation of information content in video-taped interactive group discourse in the military domain, to convert such archived planning behavior into indexed and accessible information, July 2002 - present.

*Perram, Glen P., Michael A. Marciniak, and Clark M. Groves. Managed three modeling and simulation contracts for the High Energy Laser Joint Technology Office and held substantial consultations with its members and customers, July 2002 - present.

GUNSCH, GREGG H., (ENG)

Gunsch, G. "Wireless Network Intrusion Detection," \$5K, Sponsor: AFRL/IFG.

*Gunsch, G. and D. Biro. "Detection and Management of Tainted Information in Computer Systems," \$45K, Sponsor: AFOSR.

GUSTAFSON, STEVEN C., (ENG)

Gustafson, S. C. Consultant to AAC/WMG (Eglin AFB FL) on Maverick Missile Target Shadow Discrimination, final report submitted 20 June 2002.

HAVRILLA, MICHAEL J., (ENG)

Havrilla, M., "Electromagnetic Material Characterization Using Perturbational and Mode-Matching Techniques", \$20K.

HEMINGER, ALAN R., (ENV)

Heminger, Alan R. "U.S. Air Force Server Consolidation Initiative: An Analysis," Report to AFMC/SC, October 2002.

JACOBS, Lt Col TIMOTHY M., (ENG)

Jacobs, T. M. "Collaborative Software Visualization," \$21K, Sponsor: AFOSR.

Jacobs, T. M. "Software Architectures for Distributed Command and Control," Sponsor: AFRL/IF.

Jacobs, T. M. "Integrating Ontologies Into Agent Based Systems," Sponsor: AFRL/IF.

*Jacobs, T. M. and K. Mathias. "Architectures for Composable Systems," \$50K, Sponsor: DMSO.

Jacobs, T. M. "Visual Information Retrieval", Sponsor: AFRL/IF.

HUGHSON, Lt Col MONTGOMERY C., (ENY)

Hughson, M. C. and Capt Andrew Lofthouse. "High Speed Test Track," 846th Test Squadron, 46th Test Group, Holloman AFB NM, Hypersonic flow field about test sled research.

Hughson, M. C. and Dr. Jose Camberos. AFRL/VA, Wright-Patterson AFB, OH: CEM/MHD for aerospace engineering education and research.

Hughson, M. C. and Maj David Lucia. AFRL/VA, Wright-Patterson AFB, OH: High-speed nozzle shaping using pulsed injection flow control research code development.

Hughson, M. C. and Capt Ian Bautista. SMC/TL, Aviation Blvd., Lawndale, CA: Space-based laser nozzle flow research.

Hughson, M. C. and David Gebbie. AFRL, Wright-Patterson AFB, OH: Formation flight for UAVs to reduce drag and improve endurance performance.

Hughson, M. C. and Capt Jacob Freeman. University of Cincinnati OH, Flow control using jets to delay vortex breakdown analysis using CFD.

Hughson, M. C. Paper review, *International Journal of Aeroacoustics*.

*Hughson, M. C. and Dr. Bradley S. Liebst. AFIT/NPS Rationalization Joint Working Group, Pentagon, Aeronautical, astronautical and systems engineering and space operations degree program curriculum, faculty, and research report.

Hughson, M. C. and Dr. Klaus Hoffmann. DURIP research proposal review and letter of support, Department of Aerospace Engineering, Wichita State University, KS.

Hughson, M. C. and Dr. Jean-Francois Dietiker. DEPSCoR research proposal review and letter of support, Department of Aerospace Engineering, Wichita State University, KS.

Hughson, M. C. and Maj John Antonnen. AFRL/MN, Eglin AFB, FL: Lattice grid fins for tail control of missiles in transonic flow research.

KLADITIS, Capt PAUL E., (ENG)

Kladitis, P. E. "A Red Team Member for Kearfott/IC Sensors MVBM MEMS Inertial Measurement Unit Fabrication Audit," Sponsor: AFRL/SNRP and DARPA/MTO MEMS IMU development project.

Kladitis, P. E. and R. Coutu. "Feasibility Study on MEMS Inertial Measurement Units (IMU)", Sponsor: AFRL/HECV.

LAMONT, GARY B., (ENG)

Lamont, G. B., R. Ewing, and R. Linderman. "Bioinformatics, Parallel and Distributive Processing for Signal and Image Processing", Sponsor: AFRL/IF.

LARIVEE, DAVID R., (ENS)

LaRivee, David R. "Attacking the Financial Roots of Terrorism," Swords and Ploughshares, Vol XIV, No 1, 2002.

LaRivee, David R. Sponsored by Institute for National Security Studies to investigate the coercive potential of force application from space.

LOTT, Lt Col JAMES A., (ENG)

Lott, J. A. "Monolithic Microlasers and Resonant Cavity Detectors for Medical Spectroscopy," Sponsor: Stanford University.

LOWTHER, Lt Col RONALD P., (ENP)

Lowther, Ronald P. Managed contractual research program for HQ Air Education and Training Command on data mining for weather education, May 2002 - present.

MARCINIAK, Lt Col MICHAEL A., (ENP)

*Perram, Glen P., Michael A. Marciniak, and Clark M. Groves. Managed three modeling and simulation contracts for the High Energy Laser Joint Technology Office and held substantial consultations with its members, July 2002 - present.

MATHIAS, Maj KARL S., (ENG)

Mathias, K. "Advanced Technology Repositories". This is a research project to develop intelligent imagery repositories for the National Air Intelligence Center (NAIC), \$26K, Sponsor: AFOSR.

*Mathias, K. and T. Jacobs. "Composable Simulation Research", This project develops new technologies to support dynamic creation of simulations. \$50K, Sponsor: Defense Modeling and Simulation Office (DMSO).

Mathias, K. "Information Retrieval Environments", Developed scenario building tools for simulation, \$10K, Sponsor: AFRL/SNZW.

MAYBECK, PETER S., (ENG)

Maybeck, P. S. "Multiple Model Algorithms Applied to Sensor/Actuator Failure Detection and Controller Reconfiguration for Survivable Flight Controller Design," Sponsor: ASC/HPMT and AFRL/VAC.

Maybeck, P. S. "Multiple Model Adaptive Estimators Applied to Detection/Compensation of Jamming/Spoofing of GPS-Aided Inertial Navigation Systems," Sponsor: AFRL/SNAR.

Maybeck, P. S., "Design of Ultra-Tightly Coupled GPS-Aided Inertial Navigation Systems for the Next Generation of Miniature Munition Systems," Sponsor: AFRL/MNGN.

MILLER, Maj MIKEL M., (ENG)

Miller, M. M. Technical consultant for AFRL/MN's MINT (ultra-tight coupling using a MEMS IMU) program.

Miller, M. M. "Tight Integration of Inertial Measurement Unit (IMU) and Global Positioning System (GPS) Receivers for Autonomous Vehicle Guidance, Navigation, and Control (GNC)," \$13,843, Sponsor: AFOSR.

Miller, M. M. "Global Positioning System (GPS) and GPS Integration, Vulnerabilities Analysis, and GPS Modernization," \$30K, Sponsor: 746th Test Squadron, HAFB NM.

Miller, M. M. "MEMS Gyro and Direct Correlator Output Processing GPS Receiver," \$12K, Sponsor: AFRL/SNAR.

Miller, M. M. "Ultra Wideband Indoor Geolocation," \$15K, Sponsor: 746th Test Squadron HAFB NM.

MUCZYK, JAN P., (ENV)

Muczyk, Jan P. Developed a proposal for a joint venture between AFIT and the Fisher College, The Ohio State University, for an Executive Education Program for AFMC.

Muczyk, Jan P. Developed MOU between AFIT and DAU regarding collaboration between the two organizations.

Muczyk, Jan P. Member of Committee to create the Academic Component of Systems Engineering Institute. Not consultation as such, but required a good deal of time.

PACHTER, MEIR, (ENG)

Pachter, M. "Kalman Filtering," \$10K, Sponsor: AFRL/SNAT.

Pachter, M. "Cooperative Control," \$15K, Sponsor: DAGSI.

Pachter, M. "Cooperative Control for UAVs," \$15K, Sponsor: AFRL/VACA

Pachter, M. "Cooperative Control for Air to Ground Munitions," \$5K, Sponsor: DARPA.

Pachter, M. "Project SHARED," \$15K, Sponsor: DARPA.

*Pachter, M. P. Maybeck, M. Miller, and J. Raquet. "GPS Navigation," \$15K, Sponsor: CIGTF

Pachter, M. consultant to AFRL/VACA and AFRL/SNAT.

PERRAM, GLEN P., (ENP)

Perram, Glen P. Managed three contractual research programs for the Missile Defense Agency on advanced chemical lasers, June 2002 - present.

*Perram, Glen P., Michael A. Marciniak, and Clark M. Groves. Managed three modeling and simulation contracts for the High Energy Laser Joint Technology Office and held substantial consultations with its members, July 2002 - present.

RAINES, Maj RICHARD A., (ENG)

Raines, R. A. "Resource Support for the AFIT Center of Academic Excellence in Information Assurance", \$250K, National INFOSEC Education and Training Program (NIETP), Sponsor: NSA.

*Raines, R. A., R. O. Baldwin, and M. A. Temple. "AFIT/ENG Wireless Network Laboratory", \$20K, Sponsor: Air Force Information Warfare Center.

*Raines, R. A., R. O. Baldwin, and M. A. Temple. "Security and Operational Compatibility of Heterogeneous Wireless Local Area Networks," \$30,653, CRDA Salary Funding for Emerging AF Research Thrusts.

*Baldwin, R. O., R. A. Raines, and M. A. Temple. "Classification and Analysis of Wireless Personal and Local Area Network Communication Techniques," \$30K, Sponsor: NSA.

*Baldwin, R. O., R. A. Raines, and M. A. Temple. "Communications Systems Modeling and Analysis," \$78K, Sponsor: Air Force Communications Agency.

RAQUET, Maj JOHN F., (ENG)

Raquet, J. "Optical Aiding of Inertial Navigation Systems," \$15K, Sponsor: AFRL/MN.

*Raquet, J. and M. Temple. "Evaluation of Interference Between GPS and Radar Systems," \$20K, Sponsor: GPS Joint Program Office.

*Raquet, J. and M. Temple. "Lunar Navigation System Design and Simulation," \$25K, Sponsor: NASA Glenn Research Center.

REHG, Maj MICHAEL T., (ENV)

Rehg, Michael T. Facilitator, ASC/YT Strategic Planning Offsite, June 2002.

Rehg, Michael T. Facilitator, ASC/YTA Strategic Planning Offsite, April 2002.

SWARTZ, Lt Col STEPHEN M., (ENS)

Swartz, Stephen M., and Capt Glen A. Mingee. Due to low traffic counts and limited cargo missions, the 88th LG/CC at Wright-Patterson AFB had concern that his personnel could lose their warrior skill proficiency. This could be of special concern should Wright-Patterson (W-P) be activated as an Aerial Port of Embarkation (APOE). The 88th LG/CC solicited assistance from the Air Force Institute of Technology (AFIT) to determine his airfield's current capacity and capabilities for a subsequent effort to solicit new business. New business can provide 88 LG personnel with invaluable training and experience to ensure they are ready for APOE activation, while potentially alleviating congested aerial ports across the Air Force. To determine W-P's current capacity, AFIT employed the Airfield Simulation Tool (AST) of the United States Transportation Command's Aerial Port of Debarkation Model. Several modifications and adaptations were made to allow the model to be used for this project's intent. After 28 different simulations modeling W-P's current resources, AST determined the airfield's maximum cargo throughput at either 60 tons every day at the East Ramp or 60 tons every other day at the Hot Cargo Pad.

TEMPLE, MICHAEL A., (ENG)

*Baldwin, R. O., R. A. Raines, and M. A. Temple. "Classification and Analysis of Wireless Personal and Local Area Network Communication Techniques," \$30K, Sponsor: NSA.

*Baldwin, R. O., R. A. Raines, and M. A. Temple. "Communications Systems Modeling and Analysis," \$78K, Sponsor: Air Force Communications Agency.

*Raquet, J. and M. Temple. "Evaluation of Interference Between GPS and Radar Systems," \$20K, Sponsor: GPS Joint Program Office.

*Raquet, J. and M. Temple. "Lunar Navigation System Design and Simulation," \$25K, Sponsor: NASA Glenn Research Center.

*Raines, R. A., R. O. Baldwin, and M. A. Temple. "AFIT/ENG Wireless Network Laborator," \$20K, Sponsor: Air Force Information Warfare Center.

*Raines, R. A., R. O. Baldwin, and M. A. Temple, "Security and Operational Compatibility of Heterogeneous Wireless Local Area Networks", \$30,653, CRDA Salary Funding for Emerging AF Research Thrusts.

TUTTLE, RONALD F., (ENP)

Tuttle, Ronald F. Managed U.S. Army funding of \$700K and in collaboration with Riverside Research Institute, which developed and executed first MASINT IR/SAR Certificate Program.

Tuttle, Ronald F. Managed under NAIC funding of \$30K, preparations for the Distinguished Review Board for the MASINT program at AFIT as part of the Center for MASINT Studies and Research.

WIESEL, WILLIAM E., (ENY)

Wiesel, William E. "Space Maneuver Vehicle Orbital Mission Planner," unpublished software, being developed for (and now supported by) AFRL/VS. Two TDY trips, and three weeks work during the reporting interval.

WOOD, Maj WILLIAM D., (ENG)

Wood, W. "Encryption Software Development and Flightline RCS Measurement Uncertainty Analysis," Sponsor: AFRL/SNS.

Wood, W. "Target Support Structure Design," Sponsor: NRTF.

Wood, W. "Antenna Placement Optimization and High-Impedance Ground Plane Antenna Integration," Sponsor: AFRL/SNR.

3.8 PRESENTATIONS

[*Denotes duplicate entry, multiple faculty authors.]

ABRAMSON, Maj MARK A., (ENC)

Abramson, Mark A. "Applying GPS Methods to the Design of a Load-Bearing Thermal Insulation System," Second Workshop on Nonlinear Optimization: Theoretical Aspects of Surrogate Optimization, Center for Mathematics, University of Coimbra, Coimbra, Portugal, May 2002.

Abramson, Mark A. "Applying GPS Methods to the Design of a Load-Bearing Thermal Insulation System," SIAM Conference on Optimization, Toronto Canada, May 2002.

Abramson, Mark A. "Applying GPS Methods to the Design of a Load-Bearing Thermal Insulation System," Electronic Prototyping Review, Lockheed-Martin, Sunnyvale California, July 2002.

BAILEY, WILLIAM F., (ENP)

*Bailey Wm F., D. Weeks and W. Wood. "High Power Microwave Systems," HPM Short Course, presented to AFRL Directed Energy Directorate, Kirtland AFB NM, 1 May 2002.

*Bailey Wm F., D. Weeks and W. Wood. "High Power Microwave Systems", HPM Short Course, presented to AFRL Directed Energy Directorate, Kirtland AFB NM, 2 May 2002.

*Bailey Wm F., and W. Wood. "High Power Microwave Systems," HPM Short Course, presented to Directed Energy Test and Evaluation Symposium, Albuquerque NM, 13-15 August 2002.

Josyula E. and Wm. F. Bailey. "Vibrational Relaxation and Population Depletion of Nitrogen in Hypersonic Flows, AIAA 2002-0200," 40th AIAA Aerospace Sciences Meeting and Exhibit, Reno NV, January 14-17 2002

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BENTON, Maj R. NICOLE, (ENC)

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Canfield, Robert A. "Future Potential Technology Developments in the Civil/Military Aeronautics and Aerospace Field," NATO Research and Technology Agency, Aerospace Power: Emergent Technologies Symposium, Instituto Superior Tecnico, Lisbon Portugal, July 4, 2002.

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CHILTON, Lt Col LAWRENCE K., (ENC)

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CHRISSIS, JAMES W., (ENS)

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HALE, Capt TODD B., (ENG):

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HARTRUM, THOMAS C., (ENG)

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KHAROUFEH, JEFFREY P., (ENS)

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Shelley, Agrawal, Amon, Opperman, Bugg, and Entingh. "Constructed Vertical-Flow Wetlands for Treatment of Chlorinated Ethenes," Geological Society of America, Combined Southeastern-North-Central Section Meeting, Lexington KY, 3-5 April 2002.

SPENNY, CURTIS H., (ENY)

*Spenny, C. H. and B. S. Liebst. "Assessment of Motion Devices Used for Spatial Orientation Research and Training," Presentation at the Symposium of the NATO Human Factors in Medicine Panel on Spatial Orientation in Military Vehicles, Corona Spain, April 2001.

Spenny, C. H. "Telerebotics," Presentation to High School Students of the Honors Seminar of Metropolitan Dayton," Air Force Institute of Technology, Wright Patterson AFB OH, 4 October 2001.

TEMPLE, MICHAEL A., (ENG)

*Hale, T. B., M. A. Temple, M. C. Wicks, J. F. Raquet, and M. O. Oxley. "Elevation Interferometric STAP Using a Thinned Planar Array," IEEE 2002 Radar Conference, Long Beach CA, April 2002.

- *Klein, R. W., M. A. Temple, R. L. Claypoole, Jr., R. A. Raines, and J. P. Stephens. "Wavelet Domain Communication System (WDCS) Interference Avoidance Capability: Analytic, Modeling and Simulation Results," IEEE Military Communications Conference (MILCOM 2001), McLean VA, October 2001.
- *Lee, M. J., M. A. Temple, R. L. Claypoole, Jr., and R. A. Raines. "Transform Domain Communications and Interference Avoidance Using Wavelet Packet Decomposition," IEEE Wireless Communications and Network Conference (WCNC 2002), Orlando FL, March 2002.
- *Meier, C. A., A. J. Terzuoli, Jr., M. A. Temple, and R. F. Tuttle. "PCR System Receiver Location Considering Terrain and Atmospheric Effects," Passive and Covert Radar Symposium (PCR 2000), Roke Manor UK, June 18-20, 2002.
- *Meier, C. A., A. J. Terzuoli, Jr., M. A. Temple, and R. F. Tuttle. "Passive Coherent Location System Receiver Location Considering Terrain and Atmospheric Effects," XXVIIth URSI General Assembly, Maastricht NL, August 17-24, 2002.
- *Oz Cetin, A., A. J. Terzuoli, Jr., R. L. Claypoole, Jr., S. C. Gustafson, and M. A. Temple. "Sophisticated Direction of Arrival Methods in PCR," Passive and Covert Radar Symposium (PCR 2000), Roke Manor UK, June 18-20, 2002.
- *Oz Cetin, A., A. J. Terzuoli, Jr., R. L. Claypoole, Jr., S. C. Gustafson, and M. A. Temple. "Sophisticated Direction of Arrival Methods in Passive Coherent Location," XXVIIth URSI General Assembly, Maastricht NL, August 17-24, 2002.
- Temple, M. A. "Interferometric Radar Clutter Suppression," Joint Air Force Research Laboratory (AFRL)/Dayton Area Graduate Studies Institute (DAGSI) Symposium, Wright State University, April 2002.

TERZUOLI, ANDREW J., JR., (ENG)

- Allnutt, R. A. and A. J. Terzuoli, Jr. "Emergency Communications With Near Vertical Incident (NVIS) Skywave Antennas", Mediterranean Microwave Symposium 2002, Caceres, Spain, June 26-28, 2002.
- Allnutt, R. A. and A. J. Terzuoli, Jr. "Electromagnetic Modeling of Near Vertical Incident (NVIS) Skywave Antennas," PIERS: Progress in Electromagnetics Research Symposium, Cambridge MA, July 1-5, 2002.
- Calikoglu, B. and A. J. Terzuoli, Jr., "Evaluation and Analysis of Array Antennas for Passive Radar Systems," Mediterranean Microwave Symposium 2002, Caceres, Spain, June 26-28, 2002.
- Calikoglu, B. and A. J. Terzuoli, Jr. "Evaluation and Analysis of Array Antennas for Passive Radar Systems," PIERS: Progress in Electromagnetics Research Symposium, Cambridge MA, July 1-5, 2002.
- Calikoglu, B. and A. J. Terzuoli, Jr. "Evaluation and Analysis of Array Antennas for PCR Systems," Passive and Covert Radar Symposium (PCR 2000), Roke Manor UK, June 18-20, 2002.
- *Calikoglu, B., A. J. Terzuoli, Jr., and R. F. Tuttle. "Evaluation and Analysis of Array Antennas for Passive Coherent Location Systems," XXVIIth URSI General Assembly, Maastricht NL, August 17-24, 2002.
- *Meier, C. A., A. J. Terzuoli, Jr., M. A. Temple, and R. F. Tuttle. "PCR System Receiver Location Considering Terrain and Atmospheric Effects," Passive and Covert Radar Symposium (PCR 2000), Roke Manor UK, June 18-20, 2002.
- *Meier, C. A., A. J. Terzuoli, Jr., M. A. Temple, and R. F. Tuttle. "Passive Coherent Location System Receiver Location Considering Terrain and Atmospheric Effects," XXVIIth URSI General Assembly, Maastricht NL, August 17-24, 2002.

*Ozcetin, A., A. J. Terzuoli, Jr., R. L. Claypoole, Jr., S. C. Gustafson, and M. A. Temple. "Sophisticated Direction of Arrival Methods in PCR," Passive and Covert Radar Symposium (PCR 2000), Roke Manor UK, June 18-20, 2002.

*Ozcetin, A., A. J. Terzuoli, Jr., R. L. Claypoole, Jr., S. C. Gustafson, and M. A. Temple. "Sophisticated Direction of Arrival Methods in Passive Coherent Location," XXVIIth URSI General Assembly, Maastricht, NL, August 17-24, 2002.

Pandolfi, R. and A. J. Terzuoli, Jr. "Foreign Passive Radar and Intel Developments," 48th Annual Tri-Service Radar Symposium, Naval Postgraduate School, Monterey CA, June 24-28, 2002.

WALTERS, Lt Col MICHAEL K., (ENP)

Walters, M. K. and G. R. Huffines. "Comparison of MM5 convective precipitation forecasts with cloud-to-ground lighting information in the CONUS Intermountain West," Sixth Symposium on Integrated Observing Systems, Orlando Florida, 13-17 January 2002.

WEEKS, DAVID E., (ENP)

*Bailey, Wm. F., D. Weeks and W. Wood. "High Power Microwave Systems," HPM Short Course, presented to AFRL Directed Energy Directorate, Kirtland AFB NM, 1 May 2002.

*Bailey, Wm. F., D. Weeks and W. Wood. "High Power Microwave Systems," HPM Short Course, presented to AFRL Directed Energy Directorate, Kirtland AFB NM, 2 May 2002.

*Gorski, S. M., M. A. Marciniak, R. L. Hengehold, D. E. Weeks, and G. Turner, "Time Resolved Photoluminescence Spectra of Mid-Infrared Quantum Well Lasers," APS March Meeting, Indianapolis IN, March 18-22, 2002.

*Gorski, S. M., M. A. Marciniak, R. L. Hengehold, and D. E. Weeks. "Time Resolved Photoluminescence Spectra of Mid-Infrared Quantum Well Lasers," presented at the Solid State and Diode Laser Technology Review, Albuquerque NM, June 2002.

*Roberts, J., X. Duan, J. Shoemaker, J. Henry, D. E. Weeks, and L. Burggraf. "Hybrid Ab Initio / Molecular Mechanics Models of SiC Surfaces and Clusters," AFOSR Molecular Dynamics Contractor's Review, Waltham MA, 20-22 May 2002.

Weeks, D. E., S. H. Yang, D. R. Yarkony, and S. Matiska. "Adiabatic and Diabatic Potential Energy Surfaces of B + H₂," AFOSR Molecular Dynamics Contractor's Review, Waltham MA, 20-22 May 2002.

WIESEL, WILLIAM E., (ENY)

Bordner, Capt Ralph, and William E. Wiesel. "Trajectory Estimation for Satellite Clusters," AAS/AIAA Astrodynamics Specialists Conference, Quebec City Quebec, 1 August 2002.

WOOD, AIHUA W., (ENC)

Wood, Aihua W. "A Time-Domain Finite Element Method for Cavity-Backed Scattering Problems," Mathematics Department Colloquium, University of West Virginia, Morgantown WV, October 2001.

Wood, Aihua W. "Analysis of Finite Element Methods for Time-Domain Maxwell's Equations," Mathematics Department Colloquium, University of Dayton, Dayton OH, November 2001.

Wood, Aihua W. "Topics in Analytical and Numerical Solutions of Scattering Problems," Mathematics Department Analysis Seminar, Wright State University, Dayton OH, February 2002.

Wood, Aihua W. "Analysis of Time-Domain Finite Element Methods for Cavity-Backed Scattering Problems," AFOSR Electromagnetics Workshop, San Antonio TX, January 2002.

Wood, Aihua W. "Stability Analysis of a Hybrid FETD/TDIE Method," Sixth Annual Finite Element Methods Workshop, Chios Greece, May 2002.

WOOD, Maj WILLIAM D., (ENG)

*Koper, E., W. Wood, S. W. Schneider, R. Baldwin, and R. Hill. "A Genetic Algorithm and Local Search Technique for Minimization of Monopole Coupling on Aircraft by Physical Antenna Placement," 2002 IEEE Antennas and Propagation Society International Symposium and USNC/URSI National Radio Science Meeting, San Antonio TX, June 2002.

*Pascoe, K. J., W. D. Wood, P. S. Maybeck, and A. W. Wood. "Target Recognition Via Late Time Scattering," 6th Ultra-Wideband Short-Pulse Electromagnetics Conference of the AMEREM 2002 Symposium, published by Kluwer Academic/Plenum, Annapolis MD, June 2002.

*Pascoe, K. J., W. D. Wood, P. S. Maybeck, and A. W. Wood. "Target Recognition Using Late Time Scattering," Progress in Electromagnetics Research Symposium (PIERS 2002), Cambridge MA, July 2002.

Wood, W. D. "A Hybrid Time-Domain Finite Element/Integral Equation Solution for Maxwells Equations", Invited Talk, University of Cincinnati Applied Mathematics Colloquium, Cincinnati OH, March 2002.

Wood, W. D. "Validation of Hybrid Finite Element/Integral Equation Time Domain Algorithms," Invited Talk, AFIT Applied Mathematics Colloquium, Dayton OH, February 2002.

Wood, W., R. J. Burkholder, N. Ozdemir, J. F. Lee, and R. Lee. "Stabilizing the Implicit Time-Marching Solution of the Time Domain EFIE Using a Digital Filter," 2002 Applied Computational Electromagnetics Society (ACES) Conference, and co-chair of session, On Time-Domain Integral Equation Techniques, Monterey CA, March 2002.

*Wood, W., and V. Pyati. "Computing the Backscatter from Axisymmetric Cavities," 2002 ElectroMagnetic Code Consortium Annual Meeting, and chair of classified session, Albuquerque NM, May 2002.

YEO, YUNG KEE, (ENP)

*Ahoujja, M., Y. K. Yeo, R. L. Hengehold, and D. K. Johnstone. "Deep Level Donor-Like Centers in MOCVD-Grown n-type GaN," Presented at the March 2002 Meeting of the American Physical Society, Indianapolis Indiana, 18-22 March 2002.

*Fellows, J. A., Y. K. Yeo, R. L. Hengehold, and L. Krasnobaev. "Electrical and Optical Studies of Si-Implanted GaN," Presented at the Fall Meeting of the Materials Research Society, Boston Massachusetts, 26-30 November 2001.

*Fellows, J. A., Y. K. Yeo, and R. L. Hengehold. "Electrical Activation Studies of GaN Implanted with Si from Low to High Dose," Presented at the 7th International Workshop on Wide Bandgap and III-Nitrides, Richmond Virginia, 10-14 March 2002.

*Johnstone, D., M. Ahoujja, Y. K. Yeo, R. L. Hengehold, and L. Guido. "Deep Centers and Their Capture barriers in MOCVD-Grown GaN," Presented an invited talk at the Fall Meeting of the Materials Research Society, Boston, Massachusetts, 26-30 November 2001.

Yeo, Y. K. "Electrical and Optical Activation Studies of Ion-Implanted GaN," Presented at the Semiconductor Materials Program Review, Lancaster PA, 8-20 June 2002.

3.9 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

AGNES, Maj GREGORY S., (ENY)

“Conformal Membrane Reflectors for Deployable Optics,” Effective Date: 25 April 2001, Completion Date: 25 July 2002, AFIT Technical Lead: Maj Gregory S. Agnes, USAF CRADA #01-AFIT-03, Partner: Cornerstone Research Group, Inc.

BONS, Maj Jeffrey P., (ENY)

“Real Surface Effects on Turbine Heat Transfer,” Effective Date: 27 June 1999, Completion Date: 26 June 2002, AFIT Technical Lead: Maj Jeffrey P. Bons, USAF CRADA #99-AFIT-01, Partner: Mississippi State University.

BRADY, Lt Col STEPHAN P., (ENS)

Member, Collaborative Planning, Forecasting and Replenishment (CPRF) Committee, Voluntary Interindustry Commerce Standards (VICS) Association, 2000-Present.

Manuscript Reviewer, Council of Logistics Management Educators Conference, 2002.

BRIDGMAN, CHARLES J., (ENP)

Textbook: “Introduction to the Physics of Nuclear Weapon Effects”, hardbound 535 pages, published by the Government Printing Office for the Defense Threat Reduction, Ft. Belvoir VA. Distribution limited to government agencies and their contractors. Requests should be submitted to the Director, DTRA, 8725 John J. Kingman Road, Ft. Belvoir VA 22060-6201.

BURGGRAF, LARRY W., (ENP)

Book Editor: Jensen, Janet L., Burggraf, and Larry Wilson, Chemical and Biological Early Warning Monitoring for Water, Food, and Ground: 1-2 November 2001; Proceedings of SPIE-the International Society for Optical Engineering; V 4575; Bellingham, Washington, USA, 2002.

CANFIELD, Lt Col ROBERT A., (ENY)

Executive Council Secretary, American Institute of Aeronautics and Astronautics (AIAA) Dayton-Cincinnati Section.

Awards Chairman, AIAA Multidisciplinary Design Optimization Technical Committee.

CHRISSIS, JAMES W., (ENS)

Session Organizer and Moderator for two sessions at the Miami INFORMS Annual Meeting, November 2001.

Working Group co-chair at MORS, “Operations Research Methods for Information Operations: A Battlespace of the 21st Century” workshop, April 2002.

Manuscript Reviewer, Military Operations Research.

Nominated to AIAA Multidisciplinary Design Optimization (MDO) Technical Committee (TC).

CLAYPOOLE, Maj ROGER L. JR., (ENG)

Elected treasurer of the IEEE Dayton Section..

Served as Secretary of the IEEE Dayton Section.

Served as Chairman, Signal Processing Society, Dayton Chapter.

Elected Secretary, Air Force Association, Wright-Memorial Chapter.

Served as Vice President for Communications, Air Force Association, Wright-Memorial Chapter.

Served as Secretary, AFIT/EN Faculty Council.

CUNNINGHAM, WILLIAM A., (ENS)

Editorial Review Board - Journal of Transportation Management.

Board of Directors - Tri Rivers Waterway Development Association.

Editorial Review Board – Journal of Marketing Theory and Practice.

DECKRO, RICHARD F., (ENS)

Editor, Military Operations Research.

Area Editor, Service Systems, Computers and Industrial Engineering.

Editorial Advisory Board of Computer and Operations Research.

Editorial Advisory Board of IEEE Transactions on Engineering Management.

Chaired MORS Workshop entitled “Operations Research Methods for Information Operations: A Battlespace of the 21st Century”.

Chairman, Working Group 8 – Information Operations/Information Warfare, Military Operations Research Society.

Invited participant in the 8th Annual Chairman, Joint Chiefs of Staff (CJCS)-directed *Joint Peace Operations Seminar 2002* - "The Power of Information in Peace Operations" at the Peacekeeping Institute, Carlisle Barracks.

Secretary/Treasurer, Military Applications Society, INFORMS.

Member, MORS Publication Committee.

Track Chair, Cases, Workshops, and Special Sessions, Western DSI.

FRANKE, MILTON E., (ENY)

Chair, Committee on Organization and Rules (COR). COR is a committee of the Board of Governors, American Society of Mechanical Engineers (ASME International).

ASME International representative to American Association for the Advancement of Science.

Member of the AIAA Technical Committee on Weapon Systems Effectiveness.

GOLTZ, MARK N., (ENV)

City of Beavercreek Environmental Advisory Committee.

Consulting Associate Professor at Stanford University.

“Laboratory Investigations to Analyze Palladium (Pd) Catalyzed Transformation of Nitro Aromatic Compounds (NACs) for Groundwater Treatment,” Effective Date: 29 October 2002, Estimated Completion Date: 28 October 2004, AFIT Technical Lead: Dr. Mark N. Goltz, USAF CRADA #02-AFIT-04, Partner: Wright State University.

“Remediation of Trichloroethylene Sites,” Effective Date: 4 May 2000, Completion Date: 4 July 2002, AFIT Technical Lead: Dr. Mark N. Goltz, USAF CRADA #00-AFIT-03, Partner: Wright State University.

GREINER, Maj MICHAEL A., (ENV)

Guest Co-Editor, Journal of Cost Analysis and Management.

Guest Co-Editor, Journal of Public Procurement.

Referee, Journal of Cost Analysis and Management.

Referee, Decision Sciences Institute (DSI), National Conference proceedings.

Referee, Journal of Contract Management.

GUNSCH, GREGG H., (ENG)

Invited panel member on “Directions of Intrusion Detection” at the 3rd Annual CERIAS Research Symposium, Purdue University, West Lafayette IN, April 2002.

Technical Paper Reviewer, IEEE System, Man and Cybernetics.

GUSTAFSON, STEVEN C., (ENG)

Associate Editor of the Journal of Optical Engineering.

HAVRILLA, MICHAEL J., (ENG)

Reviewer for IEEE Transactions on Education.

HENGHOLD, ROBERT L., (ENP)

Member of the Executive Committee and Honors and Awards Chairman of the Ohio Section of the American Physical Society.

HILL, Lt Col RAYMOND R., (ENS)

Organizer for Military Track, 2002 Winter Simulation Conference.

Named Military Track Coordinator for 2003 Winter Simulation Conference.

Organizer for Agent Based Modeling Session of Military Operations Research Society Mini-Symposium, “New Techniques: A Better Understanding of their Applications to Analysis.”

Organizer for Heuristic Optimization Session of Military Operations Research Society Mini-Symposium, “New Techniques: A Better Understanding of their Applications to Analysis.”

Associate Editor, Military Operations Research.

Referee, Extremes, Military Operations Research, International Journal of Logistics, International Journal of Operations and Quantitative Management, INFORMS Transactions on Education.

HOUPIS, CONSTANTINE H., (ENG)

Lecture Series Director for the NATO/RTO Lecture Series 236, which has been approved, to be given in May, 2003, in Europe and in the U.S.

Lecture Series Director for the proposed NATO/RTO Lecture Series entitled, “Partnership for Peace”, (PFP) to be given in Europe in 2004.

HUGHSON, Lt Col MONTGOMERY C., (ENY)

Established Computational Fluid Dynamics Laboratory with the purchase of a Beowulf-class high-performance computer with numerous graphics workstation peripherals for aerospace engineering basic and applied research in modeling and simulation, January 2002.

Session Chair, CFD (Computational Fluid Dynamics) Techniques III, Dayton-Cincinnati Aerospace Science Symposium, Dayton OH, March 2002.

Completed Air War College by correspondence, the final phase of Professional Military Education (PME) for Air Force officers, through Air University at Maxwell AFB, AL, March 2002.

KHAROUFEH, JEFFREY, (ENS)

Secretary, Cincinnati/Dayton Chapter of INFORMS (01-02) Refereed four archival journal articles in the past year.

Member of Working Group, Military Operations Research Society (MORS) Space Workshop, February 2002.

KLADITIS, Capt PAUL E., (ENG)

Technical Paper Reviewer, IEEE/ASME Journal of Microelectromechanical Systems.

Secretary, IEEE Dayton OH.

LAPUMA, Lt Col PETER T., (ENV)

Reviewer for International Life Cycle Assessment Journal.

Session Chair for 2002 Air and Waste Management conference.

LIEBST, BRADLEY S., (ENY)

Served on the Dayton-Cincinnati AIAA Executive Council.

Served on 2002 AIAA Cincinnati-Dayton Aerospace Symposium Committee.

MARCINIAK, Lt Col MICHAEL A., (ENP)

“Directed Energy Technology Transfer,” Effective Date: 26 October 2001, Estimated Completion Date: 25 October 2005, AFIT Technical Lead: Lt Col Michael A. Marciniak, USAF CRADA #01-AFIT-07, Partner: Directed Energy Professional Society.

MAYBECK, PETER S., (ENG)

Chaired the IEEE Dayton Section Student Branch Cross-Fertilization meeting, enhancing the communication among area colleges and the Dayton Section.

Dayton Section IEEE Student Activities Chairman and a member of the Section’s Executive Committee.

Co-Chair, Kalman Filtering and System Integration Session, ION 58th Annual Meeting, June 2002.

MILLER, Lt Col J. O., (ENS)

Referee, Military Operations Research.

MILLER, Lt Col MIKEL M., (ENG)

Faculty Advisor for AFIT Chapter of Tau Beta Pi.

Conference Session Chair and Program Chair for 58th Annual Meeting/CIGTF 21st Biennial Guidance Test Symposium, Albuquerque NM, June 2002.

Institute of Navigation (ION) National Council Member.

“Development of a Wearable System for Monitoring Position and Vital Signs of the Remote User in Real Time,” Effective Date: 20 December 2001, Estimated Completion Date: 19 October 2003, AFIT Technical Lead: Lt Col Mikel M. Miller, USAF CRADA #02-AFIT-01, Partner: Vivometrics, Inc.

MOORE, JAMES T., (ENS)

James T. Moore, Principle Investigator, and Raymond R. Hill, Associate Investigator, received AFOSR Sponsorship for proposal entitled “Application of Meta-heuristics to Air Force Problems”.

Associate editor for Military Operations Research.

Associate editor for Naval Research Logistics.

OXLEY, MARK E., (ENC)

Member, Alumni Board for Department of Mathematics, Physics and Geography, Cumberland College, Williamsburg, KY.

Claudia V. Kropas-Hughes, Steven K. Rogers, Mark E. Oxley, Matthew Kabrisky – co-inventors. Patent Number 6,401,082, “Autoassociative-Heteroassociative Neural Network, ” issued June 4, 2002. Air Force Invention Number D355.

PACHTER, MEIR, (ENG)

Member of AFOSR Review Panel.

Member of AFRL/VACA AFOSR Star Team.

PALAZOTTO, ANTHONY N., (ENY)

Associate Editor of the AIAA journal.

Member of the Advisory Board of Computational Mechanics in High Performance Computing.

PERRAM, GLEN P., (ENP)

“Pulsed Laser Deposition,” Effective Date: 23 August 2001, Estimated Completion Date: 22 August 2004, AFIT
Technical Lead: Dr. Glen P. Perram, USAF CRADA #02-218-PR-01, Partner: Air Force Research Laboratory
and IGC-SuperPower, LLC.

Member, High Energy Laser Joint Technology Office, Top Technical Area Working Group, May 2002 - present.

Hosted and chaired the Laser Weapon Modeling and Simulation Workshop, Wright-Patterson Air Force Base, OH
on 24-26 September 2002.

RAINES, Maj RICHARD A., (ENG)

Technical Paper Referee, Military Operations Research.

Technical paper Referee, Computer Communications Journal.

Session Chair, 2001 Fall IEEE Vehicular Technology Conference.

Member AFMC/AFIT Communications and Information Technology Special Emphasis Group.

Member AFIT Certificate Program Development Committee.

Faculty Council President, Graduate School of Engineering and Management.

RAQUET, Maj JOHN F., (ENG)

Served as Central Region Executive Vice President of the Institute of Navigation.

Chairman, Institute of Navigation Student Awards Committee.

Technical Paper Referee, IEEE Proceedings on Radar, Sonar, and Navigation.

Member, Editorial Advisory Board and Technical Paper Referee, GPS Solutions.

REED, Maj TIMOTHY S., (ENV)

Peer reviewer for Journal of Contract Management.

Editor of Special issue of Journal of Public Procurement on “Transforming Defense Acquisition”.

Reviewer for Entrepreneurship Division Program paper and symposium submissions, Academy of Management
meetings.

RIES, HEIDI R., (EN)

“Collaborative Engineering Graduate Education Over Interactive Video,” Effective Date: 4 August 2000, Completion Date: 3 February 2002, AFIT Technical Lead: Dr. Heidi R. Ries, USAF CRADA #00-AFIT-01, Partner: Ohio University.

“Ohio Nonprofit Corporation Agreement,” Effective Date: 21 March 1994, Estimated Completion Date: 20 March 2004, AFIT Technical Lead: Dr. Heidi R. Ries, USAF CRADA #94-AFIT-03, Partner: Wright Technology Network.

“USAF CRADA Between AFIT and Dayton Area Graduate Studies Institute,” Effective Date: 13 January 1994, Estimated Completion Date: 11 January 2004, AFIT Technical Lead: Dr. Heidi R. Ries, USAF CRADA #94-AFIT-02, Partner: Dayton Area Graduate Studies Institute.

SHELLEY, MICHAEL L., (ENV)

Advisory Board, Regional Water and Wastewater Research and Training Center (a local regional consortium of universities and city and county governments sharing funding, coordinating research, and solving environmental engineering challenges).

“Regional Water and Wastewater Research and Training Center Consortium,” Effective Date: 14 June 2002, Estimated Completion Date: 13 June 2003, AFIT Technical Lead: Dr. Michael L. Shelley, USAF CRADA #02-AFIT-03, Partner: University of Dayton.

Postdoctoral Advisor within the National Research Council’s Resident Research Associateships Program.

TERZUOLI, ANDREW J., JR., (ENG)

Chapter Chair for Joint IEEE Societies APS, MTT, GRS.

Classified Session Chair at AUSCANUKUS/NATO Symposium on Passive and Covert Radar (PCR).

Session Chair at IEEE Microwave Symposium.

3.10 SPECIAL AWARDS OR SPECIAL RECOGNITION

3.10.1 FACULTY

BAUER, KENNETH W., (ENS)

2002 Outstanding Operations Research Educator, Student Chapter of the Operations Research Society of America.

CANFIELD, Lt. Col ROBERT, (ENY)

Associate Fellow, American Institute of Aeronautics and Astronautics, January 2000.

CLAYPOOLE, Maj ROGER L., (ENG)

Received the Air Force Association Exceptional Service Award.

DECKRO, RICHARD F., (ENS)

MORS Best Working Group Paper, WG 8 Information Operations/Information Warfare, with Rob S. Renfro, 2000.
General Bernard A. Schriever Award, 2001.

ENGLAND, Maj ELLEN, (ENV)

Volunteer of the Month, Helpers Tutoring Program, Rolla MO, December 2001.

FRANKE. MILTON E., (ENY)

Appointed a Research Advisor by the National Research Council.

GOLTZ, MARK N., (ENV)

New Zealand Crown Institute for Environmental Science and Research International Fellow, 2002.

HALE, Capt TODD B., (ENG)

IDEA Award #2002-1589, Air Force Patent #6,252,540, "Two-Stage Hybrid Space-Time Adaptive Processing Algorithm".

HOUPIS, CONSTANTINE H., (ENG)

2002 University of Wyoming Tau Beta Pi Outstanding Engineering Alumnus Award.

LAMONT, GARY B., (ENG)

Eta Kappa Nu Faculty Member of the Year for 2001.

LAPUMA, Lt Col PETER T., (ENV)

Instructor of the Quarter (Winter 2002).

LIEBST, BRADLEY S., (ENY)

Awarded Associate Fellow status for AIAA.

LOWTHER, Lt Col RONALD P., (ENP)

2002 Dr. Leslie M. Norton Award for Teaching Excellence, Presented by AFIT Student Association, Wright-Patterson Air Force Base, OH on 21 March 2002.

MILLER, Lt Col MIKEL M., (ENG)

Disclosure and Record of Invention, AF Form 1279, “A Novel Electrocardiogram Segmentation Algorithm Using a Multiple Model Adaptive Estimator”.

USAF CRADA Number 02-AFIT-01 between AFIT and VivoMetrics, Inc., “Development of a Wearable System for Monitoring Position and Vital Signs of the Remote User in Real Time”.

MOORE, JAMES T., (ENS)

MORS Best Working Group Paper, WG 18 Mobility and Transport Forces.

OXLEY, MARK E., (ENC)

Received Air Force Scientific Achievement Award (IDEA 2001-5617), June 2002.

Received Air Force Scientific Achievement Award (IDEA 2001-5622), June 2002.

Received Air Force Scientific Achievement Award (IDEA 2001-5624), June 2002.

Received Air Force Scientific Achievement Award (IDEA 2001-6872), August 2002.

Received Air Force Scientific Achievement Award (IDEA 2001-6874), August 2002.

PACHTER, MEIR, (ENG)

Nominated for the AFRL/VA 2001 Foulois Award.

Recipient of the 2001 Special Act/Service Award in recognition of contributions in the field of flight control while working in the Control Theory and Optimization Branch of the Air Vehicles Directorate (AFRL/VACA).

RAINES, Maj RICHARD A., (ENG)

Air Force Meritorious Service Medal.

Lieutenant Colonel Charles P. Brothers, Jr. Outstanding Volunteer Service Award.

National Security Agency designated Center of Academic Excellence in Information Assurance Education 2002-2005 – led team that sought and gained prestigious national recognition – one of 36 schools in U. S. recognized.

Committee on National Security Systems, Information Systems Security Professionals, NSTISSI No. 4011 courseware certification – led AFIT in gaining curricula certification – one of 24 schools in country to receive honor.

RAQUET, Maj JOHN F., (ENG)

Received best-paper-in-session award for paper entitled, “Algorithm Considerations for GPS Meteorology in a Military Environment”, presented at ION GPS-2002, September 2002.

TEMPLE, MICHAEL A., (ENG)

Senior Member, IEEE.

3.10.2 STUDENTS

BERGREN, SCOTT E., (ENY)

Bergren, Scott E. and Franke, M. E., "Fabrication and Test of a Cold-Flow Model of Nozzle Rings and Manifold," AIAA-2002-2129, AIAA 33rd Plasmadynamics and Lasers Conference, Maui, Hawaii, 20-23 May 2002.

MANFRA, 2D Lt JENNIFER, (ENG)

Armed Forces Communications-Electronics Association (AFCEA) Engineering Research Excellence Award.

PAPAPHOTIS, Flt Lt MATTHEW, (ENG)

Louis F. Polk Award.

POLAT, Lt MURAT, (ENG)

Institute of Navigation Award.

RENFRO, ROB S., (ENS)

MORS Best Working Group Paper, WG 8 Information Operations/Information Warfare, (2002).

SITLER, Capt KEVIN, (ENG)

Association of Old Crows Award.

ZETTERLIND, 2D Lt VIRGIL, (ENG)

Mervin E. Gross Award.

APPENDICES

APPENDIX A FACULTY CREDENTIALS

ABRAMSON, MARK A., Maj, Assistant Professor of Mathematics, Department of Mathematics and Statistics, (AFIT/ENC); BS, Brigham Young University, 1987; MS (2), Air Force Institute of Technology, 1994; MA, Rice University, 2001; PhD, Rice University, 2002. Maj Abramson's research interests include optimization and numerical analysis, particularly as applied to engineering design problems. His recent research has focused primarily on generalized pattern search algorithms for solving nonlinear and mixed variable programming problems. Maj Abramson's previous military assignments have been in test and evaluation, logistics policy analysis, and computer simulation and analysis of war plans. Tel. 937-255-3636, x4524 (DSN: 785-3636, x4524), email = Mark.Abramson@afit.edu

AGNES, GREGORY S., Maj, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BSAE, Rensselaer Polytechnic Institute, 1989; MSAE, University of Maryland, 1991; PhD, Engineering Mechanics, Virginia Tech, 1997. Maj Agnes previously worked in the Structural Dynamics Branch of the Air Force Research Laboratory. His research interests center around inflatable/rigidizable space structures, active and passive vibration suppression, smart structures, and nonlinear dynamics. He has published numerous conference and journal papers and is a member of the AIAA, ASEE and ASME.

ANDERSON, BRADLEY E., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BS, Meteorology, University of Wisconsin - Madison, 1990; MS, Logistics Management, Air Force Institute of Technology, 1996; PhD, Business, Indiana University - Bloomington, 2002. Maj Anderson's research interests include repairable inventory management, mixed integer programming, network models, supply chain management, and evolutionary algorithms. Tel. 937-255-6565, x4335 (DSN 785-6565, x4335), email = Brad.Anderson@afit.edu

ANTHENIEN, RALPH A. JR., CAPT, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, University of California (UC) at Berkeley, 1993; MS UC Berkeley, 1996; PhD, UC Berkeley, 1998. Capt. Anthenien's research interests include development of combustors for gas turbine engines, smoldering combustion, combustion in microgravity, micro-scale combustion and combustion diagnostics. He is a member of the AIAA, ASME and the Combustion Institute. Tel. 937-255-3636 x4643 (DSN: 785-3636 x4643), email = Ralph.Anthenien@afit.edu

BAILEY, WILLIAM F., Associate Professor of Physics, Department of Engineering Physics, (AFIT/ENP); BS, United States Military Academy, 1964; MS, The Ohio State University, 1966; PhD, Air Force Institute of Technology, 1978. Professor Bailey's research interests center on weakly ionized gases and reactive kinetics, with special applications to semiconductor processing in gas discharges, shock characterization in ionized flows and solutions of the inhomogeneous electron kinetic equation. Dr. Bailey has published over 20 papers in refereed conference proceedings and international journals and chaired over 25 theses and dissertations. He is a member of Tau Beta Pi, Sigma Pi Sigma, and Sigma Xi. Tel. 937-255-3636, x4501 (DSN: 785-3636, x4501), email = William.Bailey@afit.edu

BAKER, WILLIAM P., Associate Professor of Mathematics, Department of Mathematics and Statistics, (AFIT/ENC); BA, University of California at Irvine, 1969; MA, University of California at Irvine, 1970; PhD, Northwestern University, 1987. Dr. Baker's research interests include asymptotic and perturbation methods, wave propagation and scattering theory, applied mathematics, functional analysis, low observables, and numerical analysis. Dr. Baker's current research is in acoustical and electromagnetic scattering, and vibrational dynamics of composite sandwich material. His recent papers are on fractional derivative models of viscoelastic materials. Dr. Baker is a Master Navigator with prior military assignments in flight test, satellite communications, cruise missile and radar analysis. Tel. 937-255-3636, x4517 (DSN: 785-3636, x4517), email = William.Baker@afit.edu

BALDWIN, RUSTY O., Maj, Assistant Professor of Computer Engineering, Department of Electrical and Computer Engineering (AFIT/ENG), BSEE, New Mexico State University, 1987; MS, Computer Engineering, Air Force Institute of Technology, 1992; PhD, Virginia Polytechnic Institute and State University, 1999. His research interests include computer communication networks, queuing theory, performance modeling, and analysis and simulation of real-time communication systems. Tel. 937-255-3636, x4612 (DSN: 785-3636, x4612), email = Rusty.Baldwin@afit.edu

BARR, DAVID R., Associate Professor Emeritus of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BA, Miami University, 1954; MA, Miami University, 1954; MS, Miami University, 1957; PhD, State University of Iowa, 1964. Dr. Barr's interests include probability, statistics and stochastic processes, as well as the design of experiments. Tel. 937-255-3636, x4529 (DSN: 785-3636, x4529), email = David.Barr@afit.edu

BARTCZAK, SUMMER E., Lt Col, Associate Professor, Department of Systems and Engineering Management (AFIT/ENV); BS, United States Air Force Academy, 1986; MS, Information Resource Management, Air Force Institute of Technology, 1990; MS, Military Operational Art, Air Command and Staff College, 1999; PhD, Management Information Systems, Auburn University, 2002. Lt Col Bartczak's research interests include knowledge management (KM), IT/KM strategy, and IT/KM education, training, and workforce issues. Tel. 937-255-3636, x4826 (DSN: 785-3636, x 4826), email = Summer.Bartczak@afit.edu

BAUER, KENNETH W., JR., Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, Miami University (Ohio), 1976; MEA, University of Utah, 1980; MS, Air Force Institute of Technology, 1981; PhD, Purdue University, 1987. Dr. Bauer's research interests include the statistical aspects of simulation, design of experiments, neural networks, and multivariate statistics. Tel. 937-255-6565, x4328 (DSN 785-6565, x4328), email = Kenneth.Bauer@afit.edu

BENTON, R. NICOLE, Maj, Instructor of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BS, Creighton University, 1985; MS, Air Force Institute of Technology, 1986; PhD candidate, Colorado State University. Maj Benton's research interests include queuing networks, stochastic processes, and reliability theory. Tel. 937-255-3636, x4513 (DSN: 785-3636, x4513), email = Robin.Benton@afit.edu

BIROS, DAVID P., Maj, Assistant Professor of Information Resource Management, Department of Systems and Engineering Management, (AFIT/ENV); BA, History and Secondary Education, Flagler College, 1985; MA, Public Administration, Troy State University; MS, Information Resource Management, Air Force Institute of Technology, 1992; PhD, Information and Management Sciences (minor concentration in Strategy), Florida State University, 1998. Maj Biros' research interests include information warfare, deception and deception detection in information technologies, biases in communication, and the diffusion of technology.

BLECKMANN, CHARLES A., Associate Professor of Engineering and Environmental Management, Department of Systems and Engineering Management (AFIT/ENV); BA, Secondary Education (Biology), University of Evansville, 1967; MS, Biology, Incarnate Word College, 1971; PhD, Botany, University of Arizona, 1977. Dr. Bleckmann's research interests include water and wastewater analyses and treatment, hazardous waste identification and management, land treatment of wastes, groundwater monitoring and remediation, biodegradation of wastes, fuels microbiology, and bioassays. Tel. 937-255-3636, x4721 (DSN: 785-3636, x4721), email = Charles.Bleckmann@afit.edu

BONS, JEFFREY P., Maj, Associate Professor of Aeronautical Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, Massachusetts Institute of Technology, 1988; MS, Massachusetts Institute of Technology, 1990; PhD, Massachusetts Institute of Technology, 1997. Maj Bons' research interests include fluid dynamics and heat transfer with a focus on applications to gas turbine engines. He has published numerous articles relating to turbine heat transfer and turbine cooling with a research emphasis on experimentation.

BRADY, STEPHAN P., Lt Col, Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BA, Political Science, Western Maryland College, 1985; MPA, Public Administration, University of New Hampshire, 1994; MS, Logistics Management, Air Force Institute of Technology, 1992; PhD, Business Administration, Pennsylvania State University, 1999. Lt Col Brady's research interests include transportation, logistics and supply chain management, consumable and repairable inventory management, simulation, and modeling. Tel. 937- 255-6565, x4284 (DSN 785-6565, x4284), email = Stephan.Brady@afit.edu.

BRIDGMAN, CHARLES J., Professor Emeritus of Nuclear Engineering, Department of Engineering Physics, (AFIT/ENP); BS, United States Naval Academy, 1952; MS, North Carolina State University, 1958; PhD, North Carolina State University, 1963. Dr. Bridgman's interests center around nuclear weapon effects and military nuclear power applications. He has been associated with nuclear weapon defense since 1952. He was a member of the first military team to be operational on the H-bomb. His current research interest is nuclear weapon fallout modeling. He is the author of a text book "Introduction to the Physics of Nuclear Weapons Effects" and of numerous technical articles in a wide variety of journals. In his 38 years on the AFIT faculty, he has chaired over 120 MS theses and PhD dissertations. He has received several awards including Tau Beta Pi Teacher of the Year and the Gage H. Crocker Outstanding Professor Award. Dr. Bridgman is a Fellow of the American Nuclear Society. Tel. 937-255-3636, x4679 (DSN: 785-3636, x4679), email = Charles.Bridgman@afit.edu

BROTHERS, HEIDI S., Lt Col, Assistant Professor of Engineering Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Civil Engineering, Portland State University, 1984; MS, Systems Management, University of Southern California, 1987; PhD, Environmental Engineering, University of Cincinnati, 1995. Lt Col Brothers' research interests include facility management, engineering management, contract management, and environmental management. Lt Col Brothers is a professional engineer. Tel. 937-255-3636, x4800 (DSN: 785-3636 x4800), email = Heidi.Brothers@afit.edu

BURGGRAF, LARRY W., Associate Professor of Engineering Physics, Department of Engineering Physics (AFIT/ENP); BA, Chemistry, Olivet Nazarene University, 1968; MS, Chemistry, Ohio State University, 1971; MA, Applied Mathematics, University of West Florida, 1977; PhD, Chemistry, University of Denver, 1981; Postdoctoral Associate, Computational Chemistry, Iowa State University, 1994. Dr. Burggraf conducts experimental and theoretical research in surface chemistry, surface spectroscopy and nuclear radiation spectroscopy to solve DoD and DoE problems in various areas including semiconductor chemistry; chemical, biochemical, and nuclear sensors; radiation imaging; and nuclear fuels chemistry. Dr. Burggraf's research currently applies physical chemistry tools including photoluminescence, secondary ion mass spectrometry, photoluminescence spectroscopy, infrared spectroscopy, Raman spectroscopy, atomic force microscopy, spectro-electrochemistry, and nuclear spectrometry to problems in chemical and biological detection, MEMS photothermal IR detectors, toxic interactions in cell membranes, photovoltaic cells, nuclear fuels detection, SiC processing chemistry, sol-gel processing, uranium oxide surface chemistry, and imaging hidden surfaces by gamma Compton tomography. Theoretical research to model surfaces and clusters centers on applying hybrid molecular mechanics / quantum mechanics models to predict structures, energies, dynamics and spectroscopy on surfaces of silicon, silicon carbide and uranium oxides. Dr. Burggraf has more than 30 publications. Tel. 937-255-3636 x4507 (DSN 785-3636, x4507), email = Larry.Burggraf@afit.edu .

CALICO, ROBERT A., Jr., Professor of Aerospace Engineering and Dean of Graduate School of Engineering and Management (AFIT/EN), BS, University of Cincinnati, 1966; MS, University of Cincinnati, 1968; PhD, University of Cincinnati, 1971. Dr. Calico's research interests include aircraft stability and control, analytical dynamics, stability of non-linear systems, satellite dynamics, control theory, and vibration analysis. Tel. 937-255-3025 (DSN: 785-3025), email = Robert.Calico@afit.edu

CANFIELD, ROBERT A., Lt Col, Associate Professor in Aeronautics and Astronautics, Department of Aeronautics and Astronautics, (AFIT/ENY); BSE, Mechanical Engineering, Duke University, 1983; MS, Aeronautics and Astronautics, Stanford University, 1984; PhD, Engineering Mechanics, Virginia Polytechnic Institute and State University, 1992. Lt Col Canfield's research interests include structural optimization, multidisciplinary analysis and design methods, structural dynamics and controls, and aeroelasticity. He has published thirteen journal articles and twenty-one papers in conference proceedings on these topics. Lt Col Canfield was recently the program manager for computational mathematics in the Mathematics and Space Sciences Directorate at the Air Force Office of Scientific Research (AFOSR). He is an Associate Fellow of the American Institute of Aeronautics and Astronautics. Tel. 937-255-3636, x4641, (DSN: 785-3636, x4641), email = Robert.Canfield@afit.edu

CHAMBAL, STEPHEN P., Capt, Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1993; MS, Arizona State University, 1994; PhD, Arizona State University, 1999. Capt Chambal's research interests include decision analysis, modeling and simulation, and reliability analysis. Tel. 937-255-6565, x4314 (DSN 785-6565, x4314), email = Stephen.Chambal@afit.edu

CHILTON, LAWRENCE K., Lt Col, Associate Professor of Mathematics and Deputy Head, Department of Mathematics and Statistics, (AFIT/ENC); BA, University of California at San Diego, 1981; MS, University of Illinois at Urbana-Champaign, 1988; PhD, University of Maryland, Baltimore County, 1997. Lt Col Chilton's interests include finite element analysis, numerical analysis and scientific computing. His recent papers have been on mixed finite element methods and mortar finite elements. Tel. 937-255-3636, x4523 (DSN: 785-3636, x4523), email = Lawrence.Chilton@afit.edu

CLAYPOOLE, ROGER L., JR., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG). BS, Massachusetts Institute of Technology, 1989; MS, Air Force Institute of Technology, 1994; PhD, Rice University, 2000. His research interests include wavelet theory, signal estimation, image compression, and adaptive transform theory. Tel. 937-255-3636, x4625 (DSN: 785-3636, x4625), email = Roger.Claypoole@afit.edu

CHRISSIS, JAMES W., Associate Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, University of Pittsburgh, 1975; MS, Virginia Polytechnic Institute and State University, 1977; PhD, Virginia Polytechnic Institute and State University, 1980. Dr. Chrissis' research interests include industrial engineering and operations research, engineering optimization, mathematical programming, stochastic systems, and simulation. Dr. Chrissis has been a member of the faculties of Virginia Polytechnic Institute and the University of South Florida. He is a member of the Institute for Operations Research and Management Sciences, The Society for Industrial and Applied Mathematics, the Military Operations Research Society, The American Institute of Aeronautics and Astronautics, and Sigma Xi. Tel. 937-255-6565, x4338 (DSN 785-656, x4338), email = James.Chrissis@afit.edu

COBB, RICHARD G., Maj, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, the Pennsylvania State University, 1988; MS, Air Force Institute of Technology, 1992; PhD, Air Force Institute of Technology, 1996. Maj Cobb's research interests include dynamics and control of flexible space structures, vibration isolation and suppression, system identification techniques and applied applications of optimal control theory. Prior to teaching at AFIT, Maj Cobb was responsible for the establishment of an Air Force wide Reliability Centered Maintenance program to enhance jet engine reliability. In recognition of his accomplishments, Maj Cobb was selected as the 2001 Senior Military Engineer of the Year for the Aeronautical Systems Center. Prior to his assignment at WPAFB in September 1999, Maj Cobb served as program manager for the Air Force Research Laboratory's Tech Sat 21 program, a revolutionary satellite technology program investigating the feasibility of using distributed micro-satellite constellations to satisfy Air Force global sensing requirements. While at Kirtland AFB NM, Maj Cobb also served as the technical advisor for the Space Vehicles Technology Branch, and Chief of the Dynamic Systems Group. Tel. 937-255-3636 x4559 (DSN: 785-3636, x4559), email = Richard.Cobb@afit.edu

CUNNINGHAM, WILLIAM A. III, Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BS, Business Administration, Missouri Southern State College, 1976; MS, Economics, Oklahoma State University, 1979; PhD, Economics, University of Arkansas, 1986. Dr. Cunningham's research interests include transportation, strategic mobility, activity-based costing, logistics management, public policy analysis, privatization, third-party logistics, international logistics, and international trade. Tel. (937) 255-6565, x4283 (DSN 785-6565, x4283), email = William.Cunningham@afit.edu.

D'AZZO, JOHN J., Professor Emeritus, Department of Electrical and Computer Engineering, (AFIT/ENG); BEE, College of City of New York, 1941; MS, The Ohio State University, 1950; PhD, University of Salford, England, 1978. His research interests include guidance and control of aerospace vehicles, application of control theory to engineering systems, modal control theory, applications of flight control systems, formation flight control, digital control systems, and synthesis of multivariable control systems using digital controllers. Dr. D'Azzo is the co-author of a widely used series of textbooks on control theory. He is a Fellow of the IEEE and Associate Fellow of the AIAA. Tel. 937- 255-3636, x4592 (DSN: 785-3636, x4592), email = John.DAzzo@afit.edu

DECKRO, RICHARD F., Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BSIE, State University of New York at Buffalo, 1972; MBA, Kent State University, 1973; DBA, Kent State University, 1976. Dr. Deckro's research and consulting interests are in the areas of applied mathematical programming and optimization, information operations, campaign planning, scheduling, network models, project management, engineering management, technology selection and management, and multi-criteria decision making. He is the Editor of *Military Operations Research* and Area Editor for Service Systems for *Computers and Industrial Engineering*, as well as a member of the editorial boards of *Computers and Operations Research* and *IEEE Transactions on Engineering Management*. In addition to having published a number of articles and proceedings, he consults to a variety of both public and private sector organizations. Tel. 937-255-6565, x4325 (DSN 785-6565, x4325), <http://en.afit.edu/ens/deckro/>, email = Richard.Deckro@afit.edu

DELLA-ROSE, DEVIN J., Maj, Assistant Professor of Atmospheric Physics, Department of Engineering Physics (AFIT/ENP); BS, Astronomy and Physics, Texas Christian University, 1985; BS, Meteorology, The Pennsylvania State University, 1987; MS, Upper Atmospheric Physics, Utah State University, 1993; PhD, Physics, Utah State University, 1999. Maj Della-Rose's research interests include: space environment modeling, geomagnetism, ionospheric electrodynamics, and magnetospheric physics. Maj Della-Rose is a member of the American Geophysical Union. Tel. 937-255-3636, x4514 (DSN: 785-3636, x4514), email = Devin.Della-Rose@afit.edu

ENGLAND, ELLEN C., Maj, Instructor, Department of Systems and Engineering Management (AFIT/ENV); BS, Industrial Engineering, University of Iowa, 1986; MS, General Administration, Central Michigan University, 1991; MS, Environmental Health, University of Minnesota, 1996; PhD Candidate, Environmental Engineering, University of Missouri-Rolla, Rolla, MO; 2002. Maj England's research interests include worker exposure assessment to hazardous chemicals and compliance assessment with standards. Her previous assignments include Chief of Bioenvironmental Engineering Grand Forks and Malmstrom AFB and Senior Industrial Hygienist, AFIERA, Brooks, AFB. Tel. 937-255-3636, x4711 (DSN: 785-3636, x4711), email = Ellen.England@afit.edu.

ERICKSEN, WILHELM S., Professor Emeritus of Mathematics, Department of Mathematics and Statistics, (AFIT/ENC); BA, St. Olaf College, 1936; MS, University of Wisconsin, 1939; PhD, University of Wisconsin, 1942. Dr. Ericksen's research interests include applied mathematics, differential equations, and tensor analysis. He has published on topics of elasticity of non-isotropic material, inverse pairs of test metrics, and dynamics of rigid bodies. Tel. 937-255-3636, x4678 (DSN: 785-3636, x4678), email = Wilhelm.Ericksen@afit.edu

FRANKE, MILTON E., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BME, University of Florida, 1952; MSME, University of Minnesota, 1954; PhD, The Ohio State University, 1967. Research interests include fluid transmission lines, thrust vector control, high lift aerodynamics, fluidics, cavity acoustics, thrust augmenting ejectors, electrostatic cooling, boundary layers, ground-vehicle aerodynamics, lean initiatives, and engineering of complex systems. Dr. Franke has authored or co-authored over 100 technical articles. He holds five patents, was the recipient of the AFIT Charles A. Stone Award in 1986, and the AFIT Bernard A. Schriever Award in 1993. Dr. Franke is a retired colonel in the Air Force Reserve. He is chair of the Committee on Organization and Rules (a committee of the ASME Board of Governors), a past Vice President for Communications of the ASME (1990-1992), past Vice President for Systems and Design of the ASME (1993-1996), a Fellow of the ASME, and Associate Fellow of the AIAA. Tel. 937-255-3636, x4720 (DSN: 785-3636, x4720), email = Milton.Franke@afit.edu

GODA, MATTHEW E., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BS in Physics, University of Rochester, 1989; MSEE, Tufts University, 1996; PhD, University of Arizona, 2002. Maj Goda's research interests include Electro-optics, Image Processing, and Multi Resolution Representation. Tel. 937-255-3636, x4614 (DSN: 785-3636, x4614), email = Matthew.Goda@afit.edu

GOLTZ, MARK N., Professor of Engineering and Environmental Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Cornell University, 1972; MS, University of California, Berkeley, 1973; PhD, Environmental Engineering and Science, Stanford University, 1986. Dr. Goltz specializes in modeling the physical, chemical, and biological processes that affect the fate and transport of organic contaminants in the subsurface. He is also interested in the implementation and commercialization of innovative groundwater remediation technologies. Tel. 937-255-3636, x4638 (DSN: 785-3636, x4638), email = Mark.Goltz@afit.edu

GREINER, MICHAEL A., Maj, Assistant Professor of Acquisition Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Physics, University of Portland, 1992; MS, Cost Analysis, Air Force Institute of Technology, 1996; PhD, Industrial Engineering, Arizona State University, 2001. Maj Greiner's research interests include the role of cost analysis in the acquisition decision making process, R&D portfolio selection and management, applying best commercial practices to the DoD acquisition process, and risk analysis and mitigation. Tel. (937) 255-3636, x4588 (DSN: 785-3636, x4588), email = Michael.Greiner@afit.edu

GRIFFIS, STANLEY E., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BA, History, Assumption College, 1988; MS, Logistics Management, Air Force Institute of Technology, 1996; PhD, Business Administration, The Ohio State University, 2001. Research interests include logistics performance measurement, supply chain management, logistics information management. Tel. 937-255-6565, x4333 (DSN 785-6565, x4333), email = Stanley.Griffis@afit.edu

GROVES, CLARK M., Maj, Assistant Professor of Atmospheric Physics, Department of Engineering Physics (AFIT/ENP); BS, Meteorology, University of Arizona, 1991; MS, Physics, AFIT, 1995; PhD, Physics, Utah State University, 2002. Maj Groves' research interests include: ionospheric and magnetospheric simulation and visualization, ionospheric electrodynamics, solar-terrestrial relations, and space weather effects on Air Force systems. Tel. 937-255-3636, x4505 (DSN: 785-3636, x4505), email = Clark.Groves@afit.edu

GUNSCH, GREGG H., Assistant Professor of Computer Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BSEE, University of North Dakota, 1979; MSEE, Air Force Institute of Technology, 1983; PhD, University of Illinois, 1991. Dr. Gunsch's research interests include information survivability, information warfare, artificial intelligence, and machine learning. Tel. 937-255-6565, x4281 (DSN: 785-6565, x4281), email = Gregg.Gunsch@afit.edu

GUSTAFSON, STEVEN C., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BS, University of Minnesota, 1967; MS, Duke University, 1969; PhD, Duke University, 1974. Dr. Gustafson is an author of more than 200 publicly available technical papers, proceedings, and reports, most of which relate to optical processing and pattern recognition technology. He has been initiator and principal investigator on more than \$2 million in research contracts in these areas since 1990. Tel. 937-255-3636, x4598 (DSN: 785-3636) x4598, email = Steven.Gustafson@afit.edu

HARTRUM, THOMAS C., Associate Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BEE, The Ohio State University, 1969; MS, The Ohio State University, 1969; MBA, Wright State University, 1979; PhD, The Ohio State University, 1973. Dr. Hartrum's research interests include parallel and distributed computing, and formal methods in software engineering. He has authored or co-authored over 20 conference and journal articles. He is currently conducting research in object-oriented modeling and formal methods in software engineering. He is a member of the IEEE.

HAVRILLA, MICHAEL J., Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG), BS, Michigan State University, 1987, MSEE, Michigan State University, 1989, PhD, Michigan State University, 2001. His research interests include electromagnetics, wave propagation, and electromagnetic propagation of materials. He is a member of the IEEE. Tel. 937-255-3636, x4582 (DSN: 785-3636, x4582, email = Michael.Havrilla@afit.edu.

HEIL, MICHAEL L., Col. Commandant, Air Force Institute of Technology, (AFIT/CC); BS, Engineering Sciences, United States Air Force Academy, Colorado, distinguished graduate, 1975; MS, Flight Structures, Guggenheim Fellowship, Columbia University, New York, New York, 1976; Outstanding Military Educator in Engineering Mechanics, United States Air Force Academy, Colorado, 1982-1983; PhD, Solid Mechanics, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, 1986; MS, National Resource Strategy, Industrial College of the Armed Forces, Fort Lesley J. McNair, Washington, D.C., 1994. Col Heil has held a variety of technology and acquisition leadership positions and served on the faculty at the United States Air Force Academy. Prior to his current assignment, he served as commander of the Arnold Engineering Development Center. Col Heil is a registered Professional Engineer, State of Colorado.

HEMINGER, ALAN R., Associate Professor, Department of Systems and Engineering Management (AFIT/ENV); BA, Philosophy, University of Michigan, 1966; MS, Educational Psychology, California State University at Hayward, 1978; PhD, Management Information Systems, University of Arizona, 1988. Dr. Heminger's research interests include information resource management, computers and group problem-solving, reengineering, and long-term access to information. Tel. (937) 255-3636, x4797 (DSN: 785-3636, x4797), email = Alan.Heminger@afit.edu

HENGHOLD, ROBERT L., Professor of Physics and Head, Department of Engineering Physics, (AFIT/ENP); BA, Thomas More College, 1956; MS, University of Cincinnati, 1961; PhD, University of Cincinnati, 1965. Professor Hengehold's research areas center around experimental solid state physics, semiconductor physics, optical diagnostics and electron and laser spectroscopy. He is the author of over 60 archival publications and over 150 presentations at technical meetings. He has served as advisor on over 15 doctoral dissertations and 75 Master's theses. He is currently carrying out studies of (1) compound semiconductor materials and superlattice structures for mid-infrared diode lasers and detectors using hot electron spectroscopy, and (2) wide bandgap semiconductors for UV detectors using cathodo- and photo-luminescence. This work involves collaborative efforts with the Directed Energy and Sensors Directorates of AFRL and the MIT Lincoln Laboratory. Tel. 937-255-2012 (DSN: 785-2012), email = Robert.Hengehold@afit.edu

HILL, RAYMOND R., Lt Col, Associate Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, Mathematics, Eastern Connecticut State University, 1983; MS, Air Force Institute of Technology, 1988; PhD, The Ohio State University, 1996. Lt Col Hill's research interests include simulation and optimization with ongoing funded research performed for multiple AF Battlelabs, Air Staff agencies, Logistics Management Agency, and AFRL/HES.

HOLT, DANIEL T., Maj, Instructor of Engineering Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Electrical Engineering, University of Louisville, 1989; MA, Human Resource Development, Webster University, 1993; MS, Air Force Institute of Technology, 1995. Maj Holt's research interests include environmental attitudes, organizational change, human personality and emotions, and survey development. Tel. 937-255-3636, x4574 (DSN: 785-3636, x4574), email = Daniel.Holt@afit.edu

HOUPIS, CONSTANTINE H., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BS, University of Illinois, 1947; MS, University of Illinois, 1948; PhD, University of Wyoming, 1971. His research interests include guidance and control of aerospace vehicles, application of optimal control theory to engineering systems, flight control systems, digital control systems, computational and numerical methods for control system design, linear and nonlinear control theory, multivariable theory, and quantitative feedback theory. Professor Houpis has published numerous technical articles and textbooks. He is a registered professional engineer and a Fellow of the IEEE. Tel. 937-255-3636, x4615 (DSN: 785-3636, x4615), email = Constantine.Houpis@afit.edu

HUFFINES, GARY R., Maj, Assistant Professor of Atmospheric Physics, Department of Engineering Physics, (AFIT/ENP); BA, Ohio Northern University, 1983; MS, Utah State University, 1990; PhD, Texas A&M University, 1999. Maj Huffines' research interests are focused on atmospheric electricity with an emphasis on the characteristics of cloud-to-ground lightning. He has served as the advisor for 12 Master's theses dealing with lightning and other aspects of atmospheric physics. Current research efforts include the distance that lightning travels from a storm and lightning characteristics associated with severe weather events. Tel. 937-255-3636, x4511 (DSN: 785-3636, x4511), email = Gary.Huffines@afit.edu

HUGHSON, MONTGOMERY C., Lt Col, Assistant Professor of Aerospace Engineering, Acting Deputy Department Head, CFD Laboratory Director, Department of Aeronautics and Astronautics (AFIT/ENY); AA Resource Management, Community College of the Air Force, 1989; BS Aerospace Engineering, University of Texas at Austin, 1984; MS Systems Analysis with Scientific Option, University of West Florida, 1989; MS Aeronautical Engineering, Air Force Institute of Technology at Wright-Patterson AFB, OH, 1990; MS Military Operational Art and Science, Air University at Maxwell AFB, AL, 2000; PhD Aerospace Engineering, Mississippi State University, 1998. His research interests include computational fluid dynamics and high-speed aerodynamics with an emphasis on algorithm development and aerospace vehicle applications. Lt Col Hughson is a senior member of the American Institute of Aeronautics and Astronautics (AIAA). Tel. 937-255-3636, x4597 (DSN: 785-3636, x4597), email = Montgomery.Hughson@afit.edu

JACOBS, TIMOTHY M., Lt Col, Assistant Professor of Computer Science and Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BS, Air Force Academy, 1983; MS, Boston University, 1989; MS, Air Force Institute of Technology, 1991; PhD, University of Utah, 1998. Lt Col Jacobs' primary research interests are information and software visualization, virtual environments, computer graphics, and software engineering. He is interested in using these technologies to facilitate complexity management and understanding of advanced applications in software development, computer aided engineering, decision-support, cooperative work, planning and analysis, and battlefield management. Tel. 937-255-6565, x4279 (DSN: 785-6565, x4279), email = Timothy.Jacobs@afit.edu

JACQUES, DAVID R., Lt Col, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics (AFIT/ENY); BSME, Lehigh University, 1983; MSAE, Air Force Institute of Technology, 1989; PhD, Air Force Institute of Technology, 1995. Lt Col Jacques' primary research is in the field of stability and control of air and space vehicles. He has published several papers on constrained optimal control synthesis, and co-authored a software toolbox that utilized his synthesis techniques. His current research is focused on cooperative behavior and control for air and space vehicles. This includes the coordinated rendezvous problems for manned and unmanned aircraft, cooperative search and engagement for autonomous munitions, and formation station keeping and reconfiguration for micro-satellites. Lt Col Jacques' previous assignment was a Research Engineer and Program Manager at the Munitions Directorate of the Air Force Research Lab (AFRL), Eglin AFB, FL. While assigned to AFRL, Lt Col Jacques was awarded the 1998 HQ USAF Science and Technology Award for Research and Development. Tel. 937-255-7777, x3287 (DSN: 785-7777, x3287), email = David.Jacques@afit.edu

JODOIN, VINCENT J., Lt Col, Assistant Professor of Nuclear Engineering, Department of Engineering Physics, (AFIT/ENP); BSNE, Rensselaer Polytechnic Institute, 1985; MSEE, California State University, 1988; MSNE and PhD, Air Force Institute of Technology, 1989 and 1994. Lt Col Jodoin's interests center around nuclear weapon effects and countering nuclear weapon proliferation. He has been associated with nuclear weapon issues since 1985. He was a member of the first operational test and evaluation team for the B-2 bomber with Strategic Air Command, was a nuclear science and technology analyst for the Air Force Technical Applications Center, and has managed nuclear and counterproliferation research studies for AF/XONP and DTRA. His current research interests are nuclear weapon fallout and nuclear proliferation modeling. He is a registered Professional Engineer. Tel. 937-255-3636, x4506 (DSN: 785-3636, x4506), email = Vincent.Jodoin@afit.edu

JOHN, GEORGE, Professor Emeritus of Nuclear Engineering, Department of Engineering Physics, (AFIT/ENP); BSc, Ohio State University, 1948; PhD, Ohio State University, 1952. Professor John's research areas are applications of nuclear radiation and radionuclides to problems in science and engineering. This includes applications of Mössbauer spectrometry to problems in materials sciences, analysis of radionuclides in the environment, development of nuclear radiation detectors and general techniques for detecting and analyzing nuclear radiation. Current research emphases are on applications of Mössbauer Spectrometry in the development of lubricants in collaboration with the Materials Laboratory at WPAFB. Other areas of interest are: the natural radiation background and health physics. Tel. 937-255-3636 x4837 (DSN: 785-3636 x4837), email = George.John@afit.edu

JORDAN, RITA A., Col, Associate Dean of the Graduate School of Engineering and Management, (AFIT/EN); BS, Case Western Reserve University, 1974; MA, Louisiana Tech University, 1981; PhD, University of Colorado-Boulder, 1993. Col Jordan's research interests include organizational theory and innovation. She is a member of the Accreditation Board of the Association for Advancement of Collegiate Schools of Business (AACSB). Tel. (937) 255-4372 (DSN: 785-4372), e-mail = Rita.Jordan@afit.edu

KABRISKY, MATTHEW, Professor Emeritus, Department of Electrical and Computer Engineering, (AFIT/ENG); BEE, Polytechnic Institute of Brooklyn, 1951; MEE, Polytechnic Institute of Brooklyn, 1952; PhD, University of Illinois, 1964. His areas of expertise include information processing in the human central nervous system and mathematical models of the man machine interface. Dr. Kabrisky is the author and co-author of two books and 60 technical articles. He has chaired over 100 theses and dissertations in his 30+ years in the Department. Tel. 937-255-3636, x4541 (DSN: 785-3636, x4541), email = Matthew.Kabrisky@afit.edu

KHAROUFEH, JEFFREY P., Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, Ohio University, 1995; MS, Ohio University, 1997; PhD, The Pennsylvania State University, 2001. Dr. Kharoufeh's primary research interest is the design, control, and analysis of stochastic systems with special emphasis on transportation and manufacturing systems. Other research interests include statistical tolerancing analysis and synthesis. Tel. 937-255-6565, x4336 (DSN 785-6565, x4336), email = Jeffrey.Kharoufeh@afit.edu

KING, PAUL I., Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, Arizona State University, 1971; MS, Air Force Institute of Technology, 1972; PhD, Oxford University, England, 1986. Dr. King's research interests include internal and external aerodynamics and heat transfer (wings and bodies, turbomachinery and other applications). His research emphasizes experimentation and instrumentation. He has published over 50 articles and reports and chaired over 45 theses and dissertations. Tel. 937-255-3636, x4628 (DSN: 785-3636, x4628), email = Paul.King@afit.edu.

KLADITIS, PAUL E., Capt, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BS Electrical Engineering, Wright State University, 1996; MS Electrical Engineering, Air Force Institute of Technology, 1997; PhD Mechanical Engineering, University of Colorado at Boulder, 2001. His areas of expertise include the design and fabrication of micro-electro-mechanical systems. He is a member of IEEE, ASME, and Tau Beta Pi. Tel: 937-255-3636 x4595 (DSN 785-3636, x4595), Fax: 937-656-4055 (DSN 986-4055), Email: Paul.Kladitis@afit.edu.

LAIR, ALAN V., Professor of Mathematics and Head, Department of Mathematics and Statistics, (AFIT/ENC); BA, North Texas State University, 1970; MS, Texas Tech University, 1972; PhD, Texas Tech University, 1976. Dr. Lair's research interests include parabolic and elliptic partial differential equations, functional analysis, applied mathematics, and nonlinear diffusion. Dr. Lair has published several papers on the properties of solutions of various nonlinear equations. Tel. 937-255-3636, x4519 (DSN: 785-3636, x4519), email = Alan.Lair@afit.edu

LAMONT, GARY B., Professor of Electrical and Computer Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BA, of Physics, 1961; MSEE, 1967; PhD, 1970; University of Minnesota. His research interests include: parallel/distributed computation, combinatorial optimization problems, formal methods, software engineering, digital signal processing, analog and digital control systems, intelligent and distributed control systems, computational and numerical methods, evolutionary computation, and computer-aided design. Dr. Lamont has authored textbooks as well as over 125 papers on the above topics and on educational techniques. He has chaired over 200 MS theses and 25 PhD dissertations. Dr. Lamont was an engineering systems analyst for the Honeywell Corp. for six years. Tel. 937-255-3636, x4718 (DSN: 785-3636, x4718), email = Gary.Lamont@afit.edu

LAPUMA, PETER T., Maj, Assistant Professor of Engineering and Environmental Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Mechanical and Industrial Engineering, Clarkson University, 1986; MBA, Wright State University, 1991; MS, Engineering and Environmental Management, Air Force Institute of Technology, 1994; PhD, Environmental Engineering Sciences, University of Florida, 1998. Maj LaPuma's research interests include chromated primer paint toxicity and life cycle energy modeling. His previous assignments include Director of Industrial Hygiene and environmental research engineer.

LARIVEE, DAVID R., Col, Assistant Professor of Operations Research and Head, Department of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1980; MS, University of North Carolina-Chapel Hill, 1985, D. Phil, Oxford University, 1993. Col LaRivee's research interests include combat modeling, force application from space and operational assessments. He is a member of the Institute for Operations Research and Management Science (INFORMS) and the Military Operations Research Society (MORS). Tel 937-255-6565, x 4329 (DSN 785-6565, x4329), email = David.LaRivee@afit.edu

LIEBST, BRADLEY S., Professor of Aerospace Engineering and Head, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, Wichita State University, 1978; MS, Massachusetts Institute of Technology, 1979; PhD, Massachusetts Institute of Technology, 1981. Dr. Liebst's research interests include eigenstructure assignment and control, stability and control of aerospace vehicles, passive and active control of large flexible structures, and aircraft handling qualities. He has published over 30 articles and reports and chaired over 40 theses and dissertations. Prior to teaching at AFIT, Professor Liebst was Assistant Professor of Aerospace Engineering for 6 years at the University of Minnesota where he was voted the 1987 Best Institute of Technology (U of M) Professor. Tel. 937-255-3636 x4636 (DSN: 785-6565, x4636), email = Bradley.Liebst@afit.edu

LOTT, JAMES A., Lt Col, Professor of Electrical Engineering and Deputy Head, Department of Electrical and Computer Engineering (AFIT/ENG); BSEECs, University of California at Berkeley, 1983; MSEE, Air Force Institute of Technology, 1987; PhD, University of New Mexico at Albuquerque, 1993. Lt Col Lott's research interests include microelectronics, photonics, micro-electro-mechanical systems (MEMS), and nanotechnology. His areas of expertise include epitaxial crystal growth, micro-fabrication, semiconductor physics and lasers. Lt Col Lott received a 1990 Air Force Basic Research Award, a 1994 R&D 100 Award, and the 1999 IEEE Noble Award. He is a Senior Member of the IEEE, author or co-author of over 100 refereed archival journal and conference papers, and holds four patents. Tel. 937-255-3636, x 4576 (DSN: 785-3636, x4576), email = James.Lott@afit.edu

LOWTHER, RONALD P., Lt Col, Deputy Head, Department of Engineering Physics and Assistant Professor of Atmospheric Physics, (AFIT/ENP); BS, Computer Science, Chapman University, 1983; MS, Meteorology, Texas A&M University, 1989; PhD, Meteorology, Texas A&M University, 1998. Lt Col Lowther has chaired MS theses in the areas of numerical weather prediction model validation, long-range forecasting, seasonal predictions, and data mining of climatic data for predictive patterns. Lt Col Lowther's research interests are in the field of applied climatology concentrating on long-range forecasting using global teleconnection patterns and the effects of weather on DoD operations and weapon systems. Lt Col Lowther is a member of the American Meteorological Society, National Weather Association, Air Weather Association, and the Association of American Geographers. Tel. 937-255-3636, x4645 (DSN: 785-3636, x4645), email = Ronald.Lowther@afit.edu

MAGEE, ERIC P., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BSE, Grove City College, 1987; MSEE, Air Force Institute of Technology, 1993; PhD, The Pennsylvania State University, 1998. Maj Magee's research interests include laser remote sensing (LIDAR/LADAR), coherent laser radar, adaptive optics, atmospheric optics, and optical space surveillance. His areas of expertise are communication theory, electro-optics, and linear systems.

MALL, SHANKAR, AFRL Professor, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, Mechanical Engineering, Banaras Hindu University, India, 1964; MS, Mechanical Engineering, Banaras Hindu University, 1966; PhD, Mechanical Engineering, University of Washington, 1977. Dr. Mall's research centers on composite and smart materials, fatigue and fracture. Dr. Mall has authored over 100 papers and has been the co-editor of a book and five conference proceedings. He is a Fellow of ASME, Associate Fellow of AIAA. He is also the Principal Materials Research Engineer, Materials and Manufacturing Directorate, Air Force Research Laboratory. He is associate editor of several journals. Tel. 937-255-3636, x4587 (DSN: 785-3636, x4587), email = Shankar.Mall@afit.edu

MAPLE, RAYMOND C., Lt Col, Associate Professor of Aerospace Engineering, Department of Aeronautics and Astronautics (AFIT/ENY); BS, Cornell University, 1985; MS, Air Force Insitute of Technology, 1989; PhD, Air Force Institute of Technology, 2002. Lt Col Maple's interests include computational fluid dynamics and parallel computing, with an emphasis on algorithm development, visualization, and aircraft store separation applications. Lt Col Maple is a member of the American Institute of Aeronautics and Astronautics (AIAA). Tel. 937-255-6565, x4317 (DSN: 785-6565, x4317), email = Raymond.Maple@afit.edu

MARCINIAK, MICHAEL A., Lt Col, Assistant Professor of Physics, Department of Engineering Physics (AFIT/ENP); BS, St. Joseph's College, 1981; BSEE, University of Missouri, 1983; MSEE, Air Force Institute of Technology, 1987; PhD, Air Force Institute of Technology, 1995. Lt Col Marciniak's research interests include material characterization of narrow-gap semiconductors for mid-infrared opto-electronic devices, and characterization of wide-bandgap, optically activated, high-power semiconductor devices. His previous assignments include the high-power semiconductor laser program at the Air Force Research Laboratory (AFRL), Kirtland AFB, NM, and the More Electric Aircraft program at AFRL, Wright-Patterson AFB, OH. Tel. 937-255-3636 x4529 (DSN: 785-3636 x4529), email = Michael.Marciniak@afit.edu

MATHEWS, KIRK A., Professor of Nuclear Engineering, Department of Engineering Physics, (AFIT/ENP); BS, California Institute of Technology, 1971; MS, Air Force Institute of Technology, 1982; PhD, Air Force Institute of Technology, 1983. Dr. Mathews' research interests center on computational methods for neutral particle radiation transport, and include blast and shock, nuclear weapons effects simulation, and deconvolution of radiation spectra. Dr. Mathews has published 14 papers in refereed journals and 16 conference proceedings, and has chaired 25 theses and 6 dissertations. He is a member of Tau Beta Pi. Tel. 937-255-3636, x4508 (DSN: 785-3636, x4508), email = Kirk.Mathews@afit.edu

MATHIAS, KARL S., Lt Col (S) Assistant Professor, Department of Electrical and Computer Engineering (AFIT/ENG); BS, Computer Science, Utah State University, 1986; MS, Computer Systems, Air Force Institute of Technology, 1993; PhD, Auburn University, 1999. Maj Mathias' research interests include automated data collection techniques, software visualization techniques, software engineering process improvement, and combat simulations. Tel. 937-255-6565, x4280 (DSN: 785-6565, x4280), email = Karl.Mathias@afit.edu

MAYBECK, PETER S., Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BS, Massachusetts Institute of Technology, 1968; PhD, Massachusetts Institute of Technology, 1972. Dr. Maybeck's research interests include optimal estimation and stochastic control, Kalman filtering, adaptive estimation, pointing and tracking, optimally aided inertial navigation systems, multiple model adaptive filtering. He is the author of the widely recognized three-volume reference text, "*Stochastic Models, Estimation and Control*" and of over 100 technical articles. Dr. Maybeck has received numerous national and local awards including the C. Holmes MacDonald Distinguished Young Electrical Engineering Teacher and the ASEE Frederick Emmons Terman Award as the outstanding Electrical Engineering Professor in the US for 1985. He is a Fellow of the IEEE. Tel. 937-255-3636, x4581, (DSN: 785-3636, x 4581) email = Peter.Maybeck@afit.edu

MCAREE, PAUL, Maj., Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, Michigan State University, 1989; MS, St. Mary's University, 1992; MS, Air Force Institute of Technology, 1996; PhD, University of Maryland, 2001. Maj McAree's research interests include mathematical programming, optimization, applied statistics, and personnel force management modeling. Tel. 937-255-6565, x4324 (DSN 785-6565, x4324), email = Paul.McAree@afit.edu

MCMULLAN, RICHARD J., Maj, Assistant Professor of Aeronautical Engineering, Department of Aeronautics and Astronautics (AFIT/ENY); BS, Mechanical Engineering, Clemson University, 1991; MS, Aeronautical Engineering, Air Force Institute of Technology, 1996; PhD, Aerospace Engineering, North Carolina State University, 2002. His research interests include computational fluid dynamics, high-speed aerodynamics, magnetogasdynamic flow control of scramjet propulsion systems, and unsteady supersonic mixed compression inlet flows. Tel. 937-255-6565, x4319 (DSN: 785-6565, x4319), email = Richard.McMullan@afit.edu.

MILLER, J. O., Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1980; MBA, University of Missouri at Columbia, 1983; MS, Air Force Institute of Technology, 1987; PhD, The Ohio State University, 1997. Dr. Miller's research interests include simulation, ranking and selection, complex adaptive systems, and nonparametric statistics. Tel. 937-255-6565, x4326 (DSN 785-6565, x4326), email = John.Miller@afit.edu.

MILLER, MIKEL M., Lt Col, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BSEE, North Dakota State University, Fargo, North Dakota, 1982; MSEE, Air Force Institute of Technology, 1987; PhD, Air Force Institute of Technology, 1998. Lt Col Miller's areas of interest include personal navigation and physiological monitoring, optimal estimation, adaptive estimation, Kalman filtering, multiple model adaptive estimation, optimal inertial navigation integration with the Global Positioning System (GPS) for both existing navigation systems and MEMS-based navigation systems, electromagnetic interference and mitigation techniques affecting GPS receiver performance, and autonomous vehicle navigation, control, and guidance. Lt Col Miller is an active member of Tau Beta Pi, Eta Kappa Nu, and the Institute of Navigation where he is currently the National Space Representative. Tel. 937-255-7777, x3295 (DSN: 785-7777, x 3295), email = Mikel.Miller@afit.edu.

MOORE, ALBERT H., Professor Emeritus, Department of Mathematics and Statistics, (AFIT/ENC); BME, Pratt Institute, 1942; MS, New York University, 1949; PhD, The Ohio State University, 1972. Dr. Moore's interests include order statistics, maximum likelihood estimation, Bayes estimation, numerical solution of partial differential equations, admissible estimators, adaptive robust estimation, sequential tests of hypotheses, confidence limits for system reliability, nonparametric density estimation, goodness-of-fit tests, military operations research, stochastic processes, applied mathematics, numerical analysis, operations research, probability and statistics, design of experiments, and maintainability. Tel. 937-255-3636, x4678 (DSN: 785-3636, x4678), email = Albert.Moore@afit.edu

MOORE, JAMES T., Associate Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BA, University of Colorado, 1974; MBA, University of Wyoming, 1978; MS, Air Force Institute of Technology, 1981; PhD, The University of Texas at Austin, 1988. Dr. Moore's research interests include optimization theory, integer programming, scheduling, heuristics, and mobility modeling. Tel. 937-255-6565, x4337 (DSN 785-6565, x4337), email = James.Moore@afit.edu.

MUCZYK, JAN P., Chair of Executive Education and Professor of Management, Department of Systems and Engineering Management (AFIT/ENV). BS, MBA, and DBA, University of Maryland in Management and Organizational Behavior. Dr. Muczyk's research interests include leadership, streamlining bureaucracies, and strategy implementation. Tel. (937) 255-6565, x4315; (DSN 785-3636, x-4315) e-mail = Jan.Muczyk@afit.edu.

OXLEY, MARK E., Professor of Mathematics, Department of Mathematics and Statistics, (AFIT/ENC); BS, Cumberland College, 1978; MS, Purdue University, 1980; PhD, North Carolina State University, 1987. Dr. Oxley's interests include partial differential equations, free and moving boundary value problems, finite time extinction problems, functional analysis, optimization, numerical analysis, artificial neural networks, groundwater modeling, and wavelet analysis. Several of his students have written theses related to optimal remediation of pump-and-treat systems, binaural listening, measuring the capability of artificial neural networks and most recently the fusion of multiple classifiers. Dr. Oxley has been funded by AFOSR to work on data reduction techniques, AFRL/SNAT to work on classifier fusion, DAGSI to work on Automatic Target Recognition using invariants analysis, DAGSI to work on wavelet transform algorithms for real-time processing of images, and DARPA to work on integration of sensing and processing. Tel. 937-255-3636, x4515 (DSN: 785-3636, x4515), email = Mark.Oxley@afit.edu.

PACHTER, MEIR, Professor, Department of Electrical and Computer Engineering, (AFIT/ENG); BS, Israel Institute of Technology, 1967; MS, Israel Institute of Technology, 1969; PhD, Israel Institute of Technology, 1975. Dr. Pachter's fields of expertise include automatic control of aircraft and missiles, adaptive control and system identification, inertial and GPS Navigation, autonomous control/neural networks/fuzzy logic control, nonlinear control and applied mathematics. Dr. Pachter has published papers in these areas and in differential games, robotics, and the theory of computational geometry. Tel. 937-255-3636, x4593 (DSN: 785-3636, x4593), email = Meir.Pachter@afit.edu.

PALAZOTTO, ANTHONY N., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, New York University, 1955; MS, Brooklyn Polytechnic Institute, 1961; PhD, New York University, 1968. Professor Palazotto's interests include nonlinear mechanics, shell analysis, finite elements, composite materials, viscoplasticity and nonlinear dynamics. Dr. Palazotto is the co-author of a textbook, "[The Nonlinear Analysis of Shell Structures](#)," published in 1992 by the AIAA. In addition he has authored over 158 archival technical publications and more than 330 technical reports and manuscripts. Dr. Palazotto received the Hetanyi Award in 1982 from the Society of Experimental Mechanics, the Cleary Award in 1981 from the Air Force Materials Lab, and the Structures and Materials Award from the ASCE in 1986. Dr. Palazotto is a Fellow of the ASCE and an Associate Fellow of the AIAA. He is a registered Professional Engineer. Tel. 937-255-3636, x4599 (DSN: 785-3636, x4599), email = Anthony.Palazotto@afit.edu.

PATTERSON, KIRK A., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BS, Auburn University, 1985; MS, Auburn University, 1988; MS, Air Force Institute of Technology, 1997; PhD, University of Maryland, 2002. Maj Patterson's research interests include supply chain management and logistics information management systems. Tel. 937-255-6565, x4353 (DSN 785-6565, x4353), email = Kirk.Patterson@afit.edu

PERRAM, GLEN P., Professor of Physics, Department of Engineering Physics, (AFIT/ENP); BS, Cornell University, 1980; MS, Air Force Institute of Technology, 1981; PhD, Air Force Institute of Technology, 1986. Dr. Perram's research interests include high power chemical lasers, including the Chemical Oxygen-Iodine Laser and the Airborne Laser, infrared gas-phase lasers for counter-measure missions, reaction kinetics, atomic and molecular spectroscopy, environmental science, photochemistry, molecular dynamics, optical diagnostics, and remote sensing. He has advised 16 PhD and 28 MS students, received 22 research grants and published over 60 papers during his thirteen years on the AFIT faculty. Tel. 937-255-3636, x4504 (DSN: 785-3636, x4504), email = Glen.Perram@afit.edu

PETERSON, GILBERT L. Assistant Professor of Computer Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BS Architecture University of Texas at Arlington, 1995; MS, Computer Science, University of Texas at Arlington, 1998; PhD, University of Texas at Arlington, 2001. His research interests include uncertainty in artificial intelligence, robotics, machine learning, datamining, and parallel processing. Tel. 937-255-3636, x4625 (DSN: 785-3636 x4625), email = Gilbert.Peterson@afit.edu

PETROSKY, JAMES C., LTC, Assistant Professor of Nuclear Engineering, Department of Engineering Physics, (AFIT/ENP); BA, (Engineering Physics/Computer Science) Millersville University of Pennsylvania, 1984; MS (Engineering Physics) Rensselaer Polytechnic Institute, 1992; PhD, (Engineering Physics) Rensselaer Polytechnic Institute, 1995. LTC Petrosky's interests focus on the interaction and characterization of radiation effects on semiconductor devices. His studies have included work with narrow-band gap material studies, MCT growth techniques, and modeling electrical characteristics of irradiated devices. While an Instructor at the United States Military Academy, he was the director of the USMA sub-critical assembly, taught classical physics, Nuclear Reactor Engineering and Nuclear Systems Engineering and did much work in developing reactor simulation codes and HTML modeling for use in teaching programs. His current research interests are in ionizing radiation effects in semiconductors, radiation hardening of devices, and use of modeling codes for physics and engineering instruction. LTC Petrosky is with the US Army, assigned to AFIT from the Defense Threat Reduction Agency. Tel. 937-255-3636, x4600 (DSN: 785-3636, x4600), email = James.Petrosky@afit.edu.

POHL, ANTONY J., Capt, Instructor of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BA, University of St. Thomas, 1991; MS, Air Force Institute of Technology, 1995; PhD candidate, Texas A&M University. Capt Pohl's research interests include tolerance intervals and calibration. Tel. 937-255-3636, x4516 (DSN: 785-3636, x4516), email = Antony.Pohl@afit.edu.

POTOCZNY, HENRY B., Professor of Computer Science, Department of Electrical and Computer Engineering, (AFIT/ENG); BA, La Salle University, 1965; MA, University of Kentucky, 1967; PhD, University of Kentucky, 1969. Dr. Potoczny's interests include graph theory, algorithm analysis, computing science, and, most recently, computer and data security, including cryptology, steganography, and quantum cryptology. Tel. 937-255-6565, x4282 (DSN: 785-6565, x4282), email = Henry.Potoczny@afit.edu

PYATI, VITTAL P., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BE, University of Madras, India, 1953; MSEE, Marquette University, 1962; PhD, Electrical Engineering, University of Michigan, 1966. Dr. Pyati's fields of expertise include electromagnetics, radar, low observables, and electronic warfare. Dr. Pyati has authored over 40 publications in journals and DOD Conferences. He has been a consultant to various Air Force organizations. Tel. 937-255-3636, x4620 (DSN: 785-3636, x4620), email = Vittal.Pyati@afit.edu

QUINN, DENNIS W., Professor of Mathematics, Department of Mathematics and Statistics, (AFIT/ENC); BA, Mathematics, University of Delaware, 1969; MS, Applied Mathematics, University of Delaware, 1971; PhD, Applied Mathematics, University of Delaware, 1973. Dr. Quinn's fields of expertise include numerical methods, finite elements, finite differences, integral equation methods, numerical analysis, functional analysis, system identification, and applied mathematics. Dr. Quinn has advised several MS theses students in modeling toxic chemical exposure. Dr. Quinn has published papers dealing with integral and finite element solutions of acoustic problems, using the telegrapher's equation to model lightning, using the method of characteristics in cancer risk assessment, using the diffusion equation to model diffusion through the skin in pharmacokinetic modeling and using the boundary element method for moving boundary problems. Tel. 937-255-3636, x4522 (DSN: 785-3636, x4522), email = Dennis.Quinn@afit.edu

RAINES, RICHARD A., Associate Professor of Electrical Engineering and Chief, Computer Science and Engineering Division, Department of Electrical and Computer Engineering (AFIT/ENG), BSEE, Florida State University 1985; MS, Computer Engineering, Air Force Institute of Technology, 1987; PhD, Virginia Polytechnic Institute and State University, 1994. His research interests include parallel and distributed processing systems, computer communication networks, satellite communications, and performance modeling, analysis and simulation of real-time communication systems. Tel. 937-255-3636, x4715 (DSN: 785-3636, x4715), email = Richard.Raines@afit.edu

RAQUET, JOHN F., Maj, Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BS, US Air Force Academy, 1989; MS, Massachusetts Institute of Technology, 1991; PhD, University of Calgary, Canada, 1998. Maj Raquet's areas of interest include advanced Global Positioning System (GPS) receiver technology, GPS networks and warfare, autonomous vehicle navigation and control, digital GPS processing algorithms, MEMS-based navigation systems, and electromagnetic interference and mitigation techniques affecting GPS performance. Tel. 937-255-3636, x4580 (DSN: 785-3636, x4580), email = John.Raquet@afit.edu

REED, TIMOTHY S., Maj, Assistant Professor of Strategic Purchasing and Entrepreneurship, Department of Systems and Engineering Management (AFIT/ENV), BS, Telecommunications, University of Florida, 1985; MS, Administration, Central Michigan University, 1990; MS, Aerospace Studies, Air Command and Staff College, 2001; PhD, Strategic Management and Entrepreneurship, University of Colorado, 2000. Maj Reed's research interests include the entrepreneurial mindset and its application in the DoD; firm competitive advantage; firm legitimacy; and opportunity recognition. Tel. (937) 255-3636 x4799 (DSN 785-3636, x4799), email = Timothy.Reed@afit.edu

REEDER, MARK F., Assistant Professor of Aerospace Engineering; BS, Mechanical Engineering, West Virginia University, 1989; MS, Mechanical Engineering, Ohio State University, 1991; PhD, Mechanical Engineering, Ohio State University, 1994; Prior to accepting a position with AFIT, Dr. Reeder served as an NRC Research Associate at NASA Glenn and subsequently as the manager of Research and Development for a manufacturer of industrial mixing equipment. Dr. Reeder's research interests include all aspects of fluid mechanics with an emphasis on experimental applications involving mixing enhancement and propulsion. He has been published in a variety of journals including the Journal of Fluid Mechanics, The AIAA Journal, The AIAA Journal of Propulsion and Power, Physics of Fluids, NASA Tech Briefs, and Chemical Engineering Progress. He has two patents to his credit and is a licensed Professional Engineer in the State of Ohio. Dr. Reeder is also a member of ASME and AIAA. Tel. 937-255-3636, x4318 (DSN 785-3636, x4318), email = Mark.Reeder@afit.edu.

REHG, MICHAEL, Maj, Assistant Professor of Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Wildlife Management, University of Wyoming, 1980; MS, Logistics Management, Air Force Institute of Technology, 1990; PhD, Strategic Management, Indiana University, 1998. Maj Rehg's research interests include strategic management, organizational change, whistle-blowing, organizational structure, measurement scales and survey development, aerospace defense, and international management.

RIES, HEIDI R., Associate Professor of Physics, Department of Engineering Physics (AFIT/ENP) and Associate Dean for Research, Graduate School of Engineering and Management (AFIT/ENR); BS, Physics, The Ohio State University, 1982; MS, Physics, The Ohio State University, 1984; PhD, Applied Physics, Old Dominion University, 1987. Dr. Ries' research interests include nonlinear optical materials, electron paramagnetic resonance spectroscopy, and laser processing of materials. Tel. 937-255-3636, x4544 (DSN: 785-3636, x4544) email = Heidi.Ries@afit.edu.

REYNOLDS, DANIEL E., Assistant Professor of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); AB, University of Rochester, 1965; MS, Air Force Institute of Technology, 1971; MS, Wright State University, 1983. Research interests include management cybernetics, learning theory, and exploring ways computer graphics can support statistical and mathematical education. In 1989, Professor Reynolds received Tau Beta Phi's Outstanding Professor Award. Tel. 937-255-3636, x4526 (DSN: 785-3636, x4526), email = Daniel.Reynolds@afit.edu

ROH, WON B., Professor of Engineering Physics, Department of Engineering Physics, (AFIT/ENP); BS, Seoul National University, 1964; MS, The Ohio State University, 1968; PhD, The Ohio State University, 1973. Professor Roh's research interests span technology areas covering lasers, optics, laser spectroscopy, and nonlinear optics. The applications of the technology areas include laser coupling, beam cleanup and combining, image processing, phase conjugation, chemical kinetics, and optical diagnostics. Professor Roh's research is currently funded by the Air Force Office of Scientific Research. He has advised 6 PhD and over 40 MS students during his 23 years on AFIT faculty and published about 50 papers. He is the recipient of the Gage H. Crocker Outstanding Professor Award. Tel. 937-255-3636, x4509 (DSN: 785-3636, x4509), email = Won.Roh@afit.edu

SHELLEY, MICHAEL L., Associate Professor of Engineering and Environmental Management, Department of Systems and Engineering Management (AFIT/ENV); BCE, Auburn University, 1974; MS, Virginia Tech, 1975; PhD, Environmental Science and Engineering, University of North Carolina, 1985. Dr. Shelley focuses on system dynamics modeling in analyzing long-term management strategies. His research interests include abiotic and biochemical contaminant fate and transport, physiologically-based pharmacokinetic modeling, and ecological engineering design to optimize mission activity with environmental constraints. Tel. 937-255-3636, x4594 (DSN: 785-3636, x4594), email = Michael.Shelley@afit.edu

SMITH, E. PRICE, Lt Col, Assistant Professor of Aerospace and Systems Engineering, Department of Aeronautics and Astronautics, (AFIT/ENV); BSEE, Virginia Polytechnic Institute and State University, 1982; MS, Systems Engineering, AFIT, 1987; PhD, Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, 1994. Lt Col Smith's research interests include unmanned aerial vehicle (UAV) design, systems engineering education, and global non-convex optimization algorithms. Lt Col Smith has previously been assigned to HQ USCENTCOM as the Deputy Science Advisor, and to the HQ Air Force Operational Test and Evaluation Center and the Aeronautical Systems Center as a test engineer for electronic warfare, flight simulator, and communications systems.

SPENNY, CURTIS H., Associate Professor of Aerospace and Systems Engineering, Department of Aeronautics and Astronautics, (AFIT/ENV); BSME, University of Cincinnati, 1964; MS, Engineering, UCLA, 1966; PhD, Analytical Mechanics, Harvard University, 1973. Dr. Spenny's research interests include vehicle dynamics and control, robotics, man-in-the-loop control and systems engineering. Dr. Spenny has prior experience at Hughes Aircraft, NASA and the U.S. Department of Transportation, and is a registered professional engineer in the State of Ohio. Tel. 937-255-7777, x3296 (DSN: 785-7777, x3296), email = Curtis.Spenny@afit.edu

STOCKMAN, WILLIAM K., Lt Col, Assistant Professor of Acquisition Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Mathematics, Southeast Missouri University, 1977; BS, Business Administration, Southeast Missouri University, 1977; BS, Astronautical Engineering, Air Force Institute of Technology, 1984; MS, Engineering Management, West Coast University, 1986; MS, Operations Research, Air Force Institute of Technology, 1988; MA, Economics, George Mason University, 1995; PhD, Economics, George Mason University, 1996. Lt Col Stockman's research interests include source selection evaluation techniques, public-private competition, economic analysis, and general aviation.

SWARTZ, STEPHEN M., Lt Col, Assistant Professor of Logistics Management, Department of Operational Sciences, (AFIT/ENS); AAS, Community College of the Air Force, 1984; AS, Western Oklahoma State College, 1989; BPA, Embry-Riddle Aeronautical University, 1985; MA, Webster University, 1988; MS, Air Force Institute of Technology, 1991; PhD, Michigan State University, 1999. Lt Col Swartz' research interests include aviation maintenance systems management, optimization of production systems, production management and scheduling, project management and scheduling, dynamic and static modeling, and theory of constraints education. Tel. 937-255-6565, x4285 (DSN 785-6565, x4285), email = Stephen.Swartz@afit.edu .

TEMPLE, MICHAEL A., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BSE, Southern Illinois University, 1985; MSE, Southern Illinois University, 1986; PhD, Air Force Institute of Technology, 1993. Dr. Temple's research interests include electromagnetic propagation phenomenology, Adaptive and Interferometric Clutter Erasure (ACE/ICE), High Range Resolution (HRR) radar, precision emitter location, digital and spread spectrum communications, and complex waveform generation and analysis. His sponsored research efforts in Command, Control, Communications and Intelligence (C³I), radar signal/signature processing, and Electronic Warfare (EW), as adopted by and/or transitioned to DoD and other national agencies, has provided nearly \$1M in research and technology benefits. Tel. 937-255-3636, x4703 (DSN: 785-3636, x4703), email = Michael.Temple@afit.edu

TERZUOLI, ANDREW J. JR., Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BS, Electrical Engineering, Polytechnic Institute of Brooklyn, 1969; MS, Electrical Engineering, Massachusetts Institute of Technology, 1970; PhD, Electrical Engineering, The Ohio State University, 1982. His research interests include computer model based studies; application of parallel computation, VLSI technology, and RISC architecture to numerical and transform methods; remote sensing, antennas and electromagnetics, machine vision and image processing; automated object recognition; and wave scattering, radar cross section and low observables (stealth) technology. Dr. Terzuoli has published numerous articles. His research is funded by various agencies including Wright, Rome, Phillips and Armstrong Laboratories. Prior to joining AFIT in 1982, Dr. Terzuoli was a research associate at the ElectroScience laboratory at the Ohio State University, and was a member of the technical staff at the Bell Telephone Laboratories in New Jersey. Tel. 937-255-3636, x4717 (DSN: 785-3636, x4717), email = Andrew.Terzuoli@afit.edu

THAL, ALFRED E. JR., Lt Col, Department Head and Assistant Professor of Engineering and Environmental Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Civil Engineering, Texas Tech University, 1981; MS, Engineering Management, AFIT, 1985; PhD, Environmental Engineering, University of Oklahoma, 1999. Lt Col Thal's research interests include Fair and Transport of Subsurface Contaminants, environmental policy and management issues, Engineering and Facility Management Issues, and contingency readiness and training. Tel. (937) 255-3636, x4591 (DSN: 785-3636, x4591), email = Alfred.Thal@afit.edu.

TORVIK, PETER J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, University of Minnesota, 1960; MS, University of Minnesota, 1962; PhD, University of Minnesota, 1965; BA, Wright State University, 1980. Professor Torvik is a specialist in theory of elasticity, wave propagation, shock and vibration, impact damage in aircraft systems, laser-material interactions, and aircraft survivability/ vulnerability. His primary research interests include structural dynamics, specifically, damping, impact, and penetration mechanics. Dr. Torvik is the author of some 60 technical papers and reports and 20 other publications. He served as Head of the Department of Aeronautics and Astronautics, 1980-1990. He is the recipient of the AF Meritorious Civilian Service Award and the AF Exceptional Civilian Service Award. Dr. Torvik is a Fellow of AIAA and also a Fellow of the ASME. Tel. 937-255-3636, x4740 (DSN: 785-3636, x4740), email = Peter.Torvik@afit.edu.

TRAGESSER, STEVEN G., Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BSAE, University of Illinois, 1992; MSAE, Purdue University, 1994; PhD, Purdue University, 1997. Prior to joining the AFIT faculty, Dr. Tragesser worked in the Space Guidance and Navigation Section at Draper Laboratory. His research interests include guidance of hypersonic vehicles, trajectory design and optimization, dynamics of tethered spacecraft, and satellite formation flying. Dr. Tragesser has published several refereed journal and conference papers and is a member of AIAA. Tel. 937-255-6565, x4286 (DSN: 785-6565, x4286), email = Steven.Tragesser@afit.edu.

TUTTLE, RONALD F., Associate Professor of Nuclear Engineering and Chair, Measurement and Signature Intelligence (MASINT) Technologies, Department of Engineering Physics, (AFIT/ENP); BS, Chemical Engineering, University of Missouri (Columbia), 1968; MS, Nuclear Engineering, University of Missouri (Columbia), 1970; PhD, Nuclear Engineering, University of Missouri (Columbia), 1980. Dr. Tuttle's research areas are applications of active and passive remote sensing, spectroscopy, diagnostics, and signals processing to problems in intelligence collection and exploitation. Other areas of interest are nuclear weapon effects and space nuclear power systems modeling and mechanics of aerosols. He has published in both unclassified and classified refereed archival journals and conference proceedings. Tel. 937-255-3636, x 4536 (DSN 785-3636, x4536), email = Ronald.Tuttle@afit.edu.

WALTERS, MICHAEL K., Lt Col, Assistant Professor of Atmospheric Physics, Department of Engineering Physics (AFIT/ENP); BS, Zoology, Texas A&M University, 1976; MS, Meteorology, Texas A&M University, 1985; PhD, Meteorology, Texas A&M University, 1988. Lt Col Walters has chaired 17 MS theses in four years at AFIT in the areas of battlefield-scale cloud forecasting, contrail forecasting, forecast support for electro-optical precision guided munitions, thunderstorm and downburst wind forecasting for space-launch support, ensemble-based probability of precipitation forecasting, transport and diffusion modeling, and mesoscale numerical weather prediction. He is a member of the American Meteorological Society and the American Geophysical Union. Tel. 937-255-3636, x4681 (DSN: 785-3636, x4681), email = Michael.Walters@afit.edu.

WARD, MARK A., Maj, Assistant Professor of Information Resource Management, Department of Systems and Engineering Management, (AFIT/ENV); BS, Texas A&M University; MS, Air Force Institute of Technology, 1992; PhD, Business Administration, Southern Illinois University at Carbondale, 1999. Maj Ward previously worked at Headquarters Air Mobility Command in the C-17 acquisition program. His research interests center around information systems productivity and numerous organizational studies issues. He is a member of MENSA and Beta Gamma Sigma. Tel. 937-255-3636, x4742 (DSN: 785-3636, x4742), email = Mark.Ward@afit.edu.

WEBB, TIMOTHY S., Maj, Instructor of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BS, United States Air Force Academy, 1988; MS, Air Force Institute of Technology, 1994; PhD candidate, University of Colorado Health Sciences Center. Maj Webb's research interests include biostatistics, categorical data analysis, and design of experiments. Tel. 937-255-3636, x4678 (DSN: 785-3636, x4678), email = Timothy.Webb@afit.edu.

WEEKS, DAVID E., Associate Professor of Physics, Department of Engineering Physics (AFIT/ENP); BA Physics with honors, Colgate University, 1983; MS, Physics, Georgia Institute of Technology, 1985; PhD, Physics, University of Arkansas, 1989. Dr. Weeks' research interests include the development of time dependent wave packet methods to model the quantum mechanics of simple chemical reactions and to compute associated state to state reactive scattering matrix elements. A second area of interest centers on the application of k.p theory together with the envelope function approximation to model the electronic and optical properties of quantum well heterostructures. Tel. 937-255-3636, x4561 (DSN: 785-3636, x4561), email = David.Weeks@afit.edu

WEIR, JEFFERY D., Maj, Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); Bachelors of Electrical Engineering, Georgia Institute of Technology, 1988; MAS, Embry Riddle Aeronautical University, 1992; MS, Air Force Institute of Technology, 1995; PhD, Georgia Institute of Technology, 2002. Maj Weir's research interests include large-scale optimization, mathematical programming and decision analysis. He is a member of the Institute for Operations Research and Management Science (INFORMS) and the Military Operations Research Society (MORS). Tel. 937-255-6565, x4333 (DSN 785-6565, x4333), email = Jeffery.Weir@afit.edu

WHITE III, EDWARD D., Maj, Assistant Professor of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BS, University of Tampa, 1990; MAS, Ohio State University, 1991; PhD, Texas A&M University, 1998. Capt White's research interests include design of experiments, categorical data analysis, biostatistics, and model building.

WIESEL, WILLIAM E., JR., Professor of Astronautical Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, University of Massachusetts, 1970; MS, Harvard University, 1972; PhD, Harvard University, 1974. Dr. Wiesel's research interests include orbital mechanics and astrodynamics, chaotic systems, estimation and control, planetary astronomy, stability theory, and optimal control. Dr. Wiesel is the author of Spaceflight Dynamics, the leading introductory text on astronautical engineering. He has authored over 30 technical papers and has been a member of the department for 25 years. Tel. 937-255-6565, x4312 (DSN: 785-6565, x4312), email = William.Wiesel@afit.edu

WILEY, VICTOR D., Maj, Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, Texas A&M University, 1991; MS, Air Force Institute of Technology, 1996; PhD, The University of Texas at Austin, 2001. Maj Wiley's research interests include heuristics, metaheuristics, applications of group theory to metaheuristic search neighborhoods, and program management. Tel. 937-255-6565, x4367 (DSN 785-6565, x4367), email = Victor.Wiley@afit.edu

WOLF PAUL J., Associate Professor of Physics, Department of Engineering Physics, (AFIT/ENP); and Assistant Dean, Graduate School of Engineering and Management, (AFIT/EN); BS, Regis College, 1978; MS, Air Force Institute of Technology, 1979; PhD, Air Force Institute of Technology, 1985. Dr. Wolf's research interests are concentrated in experimental atomic/molecular spectroscopy, reactive and non-reactive collision kinetics, thin film deposition processes by laser with applications toward laser devices, ionospheric and atmospheric chemistry, environmental monitoring, and thin film devices. He has published over 20 papers and advised two PhD and five MS students. Tel. 937-255-3636, x4560 (DSN: 785-3636, x4560), email = Paul.Wolf@afit.edu

WOOD, AIHUA W., Professor of Mathematics, Department of Mathematics and Statistics (AFIT/ENC); BS, Beijing University, 1984; MS, University of Connecticut, 1988; PhD, University of Connecticut, 1990. Dr. Wood's research interests include elliptic partial differential equations, electromagnetic wave propagation, finite element methods, and photonic crystals. Dr. Wood is currently funded by the Air Force Office of Scientific Research to investigate scattering and propagation of electromagnetic waves, and is the Principal Investigator for a AFRL/DAGSI Research Project to develop a hybrid Maxwell solver for wide-band radar signature prediction for low observable targets. Tel. 937-255-3636, x4521 (DSN: 785-3636, x4521), email = Aihua.Wood@afit.edu

WOOD, WILLIAM D., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BSEE, University of Arizona, 1985; MSEE, Air Force Institute of Technology, 1990; PhD, Air Force Institute of Technology, 1997. Maj Wood's research interests include low observables and electromagnetic scattering and radiation. His areas of expertise include computational electromagnetics, wave interaction, and radar measurement technology. He is a Member of the IEEE, author or co-author of 12 refereed archival journal and conference papers. Tel. 937-255-3636, x4639 (DSN: 785-3636, x4639), email = William.Wood@afit.edu.

YEO, YUNG K., Professor of Physics, Department of Engineering Physics, (AFIT/ENP); BS, Seoul National University, 1961; PhD, University of Southern California, 1972. Professor Yeo's research interests include solid-state physics, especially characterization of the electrical and optical properties of elemental, compound, ternary, and quaternary semiconductors using techniques such as Hall effect measurement, deep level transient spectroscopy, cathodoluminescence, and photoluminescence. Professor Yeo has published about 80 articles in archival journals, several technical reports, presented about 160 papers at professional conferences, and holds one patent. He is a reviewer for the Applied Physics Letters and the Journal of Applied Physics. He is currently funded by the AFOSR to study wide band gap semiconductors such as SiC and GaN. This work involves collaborative effort with the Air Force Wright Laboratory. He has directed the research of eleven PhD students and sixteen MS students. He received the Ezra Kotcher Award for 1990, received the Gage H. Crocker Outstanding Professor Award for 1992, and received General Bernard A. Schriever Award for 1997. Tel. 937-255-3636, x4532 (DSN 785-3636, x4532), email= Yung.Yeo@afit.edu .

APPENDIX B DEPARTMENT SYMBOLS AND LOCATIONS

<u>Symbol</u>	<u>School Office/Department</u>	<u>Room</u>	<u>Telephone, (DSN)</u>
EN	Office of the Dean Dr. Robert A. Calico, Jr., Dean Col Rita A. Jordan, Associate Dean Dr. Paul J. Wolf, Assistant Dean for Academic Affairs	100	(937) 255-3025 (DSN: 785-3025) (937) 255-3025 (DSN: 785-3025) (937) 255-4372 (DSN: 785-4372) (937) 255-3636, x4560 (DSN: 785-3636, x4560)
ENR	Office of Research and Consulting Dr. Heidi R. Ries, Associate Dean for Research	103	(937) 255-3633 (DSN: 785-3633)
ENC	Department of Mathematics and Statistics Dr. Alan V. Lair	114	(937) 255-3098 (DSN: 785-3098)
ENG	Department of Electrical and Computer Engineering Col Donald R. Kitchen	218	(937) 255-2024 (DSN: 785-2024)
ENP	Department of Engineering Physics Dr. Robert L. Hengehold	106	(937) 255-2012 (DSN: 785-2012)
ENS	Department of Operational Sciences Col David R. LaRivee	177 FAX	(937) 255-2549 (DSN: 785-2549) (937) 656-4943 (DSN: 986-4943)
ENV	Department of Systems and Engineering Management Lt Col Alfred E. Thal, Jr.	204	(937) 255-2998 (DSN: 785-2998)
ENY	Department of Aeronautics and Astronautics Dr. Bradley S. Liebst	201	(937) 255-3069 (DSN: 785-3069)

APPENDIX C ABBREVIATIONS FOR ORGANIZATIONS

There are a number of abbreviations for organizations that are used in this report. This alphabetical listing includes only selected organizations. The Defense Technical Information Center has an acronym listing at <http://www.dtic.mil/dtic/dtic-acronyms.html> . The department symbols for the Graduate School of Engineering and Management are found in Appendix B.

ACC	Air Combat Command
AETC	Air Education and Training Command
AFCEE	Air Force Center for Environmental Excellence
AFCESA	Air Force Civil Engineer Support Agency
AFIT	Air Force Institute of Technology
AFMC	Air Force Materiel Command
AFOSR	Air Force Office of Scientific Research
AFOTEC	Air Force Operational Test and Evaluation Center
AFRL	Air Force Research Laboratory
AFSPC	Air Force Space Command
AFTAC	Air Force Technical Applications Center
AIA	Air Intelligence Agency
AMC	Air Mobility Command
ASC	Aeronautical Systems Center
AU	Air University
CRADA	Cooperative Research and Development Agreement
DAGSI	Dayton Area Graduate Studies Institute
DE	Directed Energy Directorate
DISA	Defense Information Systems Agency
DoD	Department of Defense
DOE	Department of Energy
HE	Human Effectiveness Directorate
HQ AU	Headquarters, Air University
IF	Information Directorate
ML	Materials and Manufacturing Directorate
MN	Munitions Directorate
PACAF	Pacific Air Forces
PR	Propulsion Directorate
SAF	Secretary of the Air Force
SN	Sensors Directorate
USAF	United States Air Force
VA	Air Vehicles Directorate
VS	Space Vehicles Directorate

APPENDIX D AFIT HISTORY

The Institute

AFIT traces its roots to the early days of powered flight when it was apparent that the progress of military aviation depended upon special education in this new science. In 1919, the Air School of Application was established at McCook Field in Dayton, Ohio, the home of Orville and Wilbur Wright.

When Congress authorized creation of the Air Corps in 1926, the school was renamed the Air Corps Engineering School and moved to Wright Field in 1927. Shortly after Pearl Harbor, the school suspended classes, but it reopened as the Army Air Forces Engineering School in 1944 to conduct a series of accelerated courses to meet emergency requirements.

In 1946, the Army Air Force Institute of Technology was established as part of the Air Materiel Command. The Institute was composed of two colleges: Engineering and Maintenance, and Logistics and Procurement. These colleges were later redesignated the College of Engineering Sciences and the College of Industrial Administration.

When the Air Force became a separate service in 1947, the Institute was renamed the Air Force Institute of Technology. That same year, the School of Civil Engineering Special Staff Officer's Course began. In 1948, civilian institution programs were transferred to AFIT.

In 1950, command jurisdiction of AFIT shifted from Air Materiel Command to Air University (AU) with headquarters at Maxwell AFB, Alabama. The Institute, however, remained at what was now known as Wright-Patterson AFB. In 1951, the two AFIT colleges were combined into the Resident College.

The Institute established a logistics education program at WPAFB in 1955, and The Ohio State University conducted the first courses on a contract basis. In 1958, AFIT began a series of short courses in logistics as part of the Air Force Logistics Command (AFLC) Education Center. Later that year, the School of Logistics became a permanent part of AFIT.

In 1954, the 83rd Congress authorized the Commander of Air University to confer degrees upon persons in the AFIT Resident College. The college was divided later into the School of Engineering, the School of Logistics, the Installations Engineering School, and the School of Business. The first undergraduate engineering degrees were granted in 1956, and the first graduate degrees in business in 1958. The School of Business programs were transferred to civilian universities in 1960. In 1963, the School of Logistics was redesignated the School of Systems and Logistics. Also, the Civil Engineering Center was redesignated as the Civil Engineering School.

In 1967, AFIT became a member of the Dayton Miami Valley Consortium (DMVC), which later changed its name to Southwestern Ohio Council for Higher Education (SOCHE). The council is an association of colleges, universities, and industrial organizations in the Dayton area united to promote educational advancement. AFIT traditionally has been active in both the council and in other community and inter-institutional programs.

In 1995, AFIT's Graduate School of Engineering became a member of the Dayton Area Graduate Studies Institute (DAGSI) along with the graduate engineering schools of Wright State University and the University of Dayton. The purpose of the partnership was to provide, through the combined engineering and research resources of the three schools, educational and research opportunities at the MS and PhD level. The University of Cincinnati and the Ohio State University became affiliate members of DAGSI in 1997. DAGSI provides a continuing source of advanced technological expertise for the region covered by the five schools. The DAGSI program covers a broad spectrum of over 30 major research areas and benefits from the support of business and industry, government and civic sectors of the Dayton Region.

Early in Fiscal Year 97, the Secretary of the Air Force made a decision to close the AFIT resident graduate schools. In anticipation of closure, AFIT developed and began a transition and closure plan. However, in April 1998, after a visit to AFIT, the Acting Secretary of the Air Force, F. Whitten Peters announced a reversal of the Air Force decision to terminate the AFIT resident graduate programs. AFIT has continued a restructuring initiative begun in FY96 that sized the resident graduate programs to meet the Air Force education requirements of the FY03 force structure. As part of this restructuring, the two resident graduate schools were merged into the Graduate School of Engineering and Management on Oct 1, 1999.

Research

Creative, relevant research programs are essential to both graduate education and the continuous modernization of military capability. Consequently, research has been an important element of the educational enterprise throughout AFIT's history, often in collaboration with scientists of the Air Force Research Laboratories co-located at Wright-Patterson Air Force Base. The implementation of the PhD program at AFIT in 1965 resulted in significant growth of the research activities on the AFIT campus. The expanded role of sponsored research at AFIT was recognized by the creation of the Office of Research for the School of Engineering in 1989 and the Office of Research and Consulting for the School of Logistics and Acquisition Management in 1990 (now the Office of Research and Consulting in the Graduate School of Engineering and Management).

Several key projects are illustrative of AFIT's research impact on the Air Force, the Department of Defense, and the nation. For more than twenty years, the Department of Engineering Physics has conducted strong research in high-energy laser technology and delivered mission ready graduates to AF laboratories. Two PhD graduates served as directors of the Air Force laser program, and four PhD graduates led the team demonstrating a 40 kW laser for anti-satellite missions. The AFIT laser weapons research group is now supporting the development of the Airborne Laser, based on the Chemical Oxygen Iodine Laser co-invented by an AFIT graduate. Other work of the laser weapons research group includes the development of lasers for remote sensing and counter-proliferation applications, new optical diagnostic methods, and studies of ionization mechanisms in the thermosphere for satellite survivability.

In support of the Air Force's and DoD's environmental restoration programs, AFIT established a remediation research program in the early 1990's involving faculty from four departments. Since that time, over 50 student theses on the subject have been published and graduates have gone on to manage remediation programs at bases and major commands throughout the Air Force. Research contributions include a field demonstration of a bioremediation technology that destroys trichloroethylene, the most common groundwater contaminant at DoD installations, and some of the first studies of the biodegradability of tolyltriazole, an aircraft deicing fluid additive recognized as an important groundwater contaminant at airfields throughout the nation.

AFIT researchers in the Department of Operational Science, responding to the needs of the C-17 Systems Program Office (SPO), developed an object-oriented simulation model to quantify the rate of paratrooper/vortex interaction for various airdrop formations, enhanced through high-resolution computer visualization of model results. The research results were briefed to the C-17 SPO Director, the Director of Test and Evaluation for the Office of the Secretary of Defense, the Undersecretary of the Army for Operations Research, and the Commander of the XVIII Airborne Corps. Utilizing their C-17 airdrop simulation model, the AFIT researchers also led a preflight study of the multinational CENTRAZBAT '97 Exercise; the XVIII Airborne Corps Commander praised their analysis as "dead-on!"

The Department of Aeronautics and Astronautics has an ongoing research program studying high cycle fatigue, the cause of the most dominant issue relevant to gas turbine engine damage. Currently, there exists only a cursory understanding of damage, crack initiation, and crack propagation under high cycle fatigue conditions. It has been recognized that a significant number of failures of engine components are attributable to fretting damage, such as dove-tailed blades, including press-fit or interlocking connections which are subjected to surface wear and fretting fatigue. The study, in collaboration with the Materials and Manufacturing Directorate of the Air Force Research Laboratory, uses an integrated experimental/analytical numerical modeling approach to investigate the high cycle fretting fatigue behavior of titanium alloys.

In December 1998, AFIT broke ground for an \$8.9 million engineering laboratory. The lab officially opened in March 2001 and enables AFIT to continue its tradition of high quality experimental research in aeronautical engineering, electrical engineering, applied physics and environmental science in support of the Air Force Mission. In 2002, AFIT established three research centers: the Center for Information Systems Security Education and Research; the Center for Measurement and Signature Intelligence Studies and Research; and the Center for Directed Energy.

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General inquiries concerning faculty and student research at the Air Force Institute of Technology may be addressed to:

Office of Research and Consulting
Air Force Institute of Technology
2950 P Street, Bldg 640, Room 103
Wright Patterson AFB, OH 45433-7765
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Email: afit.enrsta@afit.edu

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