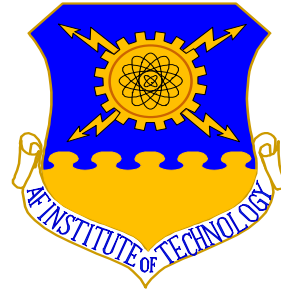


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TECHNICAL REPORT
March 2001



Air Force Institute of Technology

Research Report 2000

Period of Report: 1 October 1999 to 30 September 2000

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

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**Air Force Institute of Technology
Research Report 2000
Foreword**

The Graduate School of Engineering and Management at the Air Force Institute of Technology (AFIT) provides responsive, defense focused graduate education and research to help sustain the technological supremacy of the United States Air Force (USAF). AFIT maintains close affiliations with USAF research organizations and operational communities, Department of Defense (DoD) agencies and premier graduate education institutions to ensure continued relevance and high quality of our academic and research programs. AFIT's unique focus provides an outstanding environment for educating future managers and engineers in disciplines critical to anticipated defense needs.

Research experience is an essential element of a quality technical education, providing both in-depth knowledge and broadly applicable critical thinking skills that will be used throughout a graduate's career. In addition to delivering long-term educational advantages, AFIT strives to ensure that the research program provides immediate benefits to the USAF and DoD. AFIT also 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 US USAF laboratories and DoD agencies, and to encourage new sponsors to participate in AFIT's research program.

As USAF takes on the challenges of the 21st century, AFIT will continue to meet the technical education needs of USAF, DoD, and the nation.

**ROBERT A. CALICO, JR.
Dean, Graduate School of Engineering
& Management
Air Force Institute of Technology**

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1. INTRODUCTION

1.1 OVERVIEW

This Research Report presents the FY 00 research statistics and contributions of the Graduate School of Engineering and Management (EN) at the Air Force Institute of Technology (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 (CRDAs). Interested individuals may discuss ideas for new research collaborations, potential CRDAs, or thesis topic proposals with individual faculty using the contact information in the Appendix.

Additional information on the research programs of AFIT may also be found on the research web home page at <http://www.afit.edu/research>. 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 Heidi.Ries@afit.edu or Mr. Gary M. Koenig, PE, Research Grants Engineer, (937) 255-3636, ext 4546 (DSN: 785-3636, ext 4546), email Gary.Koenig@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 call for thesis topic proposals in an effort to involve sponsor organizations actively in research and education. Over 200 responses were received last year in the *2001 Call For Thesis Topic Proposals*, and approximately 5% resulted in thesis projects. Many outstanding topics could not be addressed this year due to student shortages, but will be considered for adoption by next year's class. The departments invite research collaboration in their research specialties.

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

Applied Mathematics
Statistical Analysis

Partial Differential Equations
Numerical Analysis

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

Communications / Networks
Evolutionary Algorithms
Information Operations
Micro Systems

Electromagnetics / Low Observables (Stealth)
Guidance, Navigation and Control
Intelligent Distributed Information Systems
Parallel / Distributed Processing

The Department of Engineering Physics invites MS thesis topic proposals for the Engineering Physics, Nuclear Engineering, Electro-Optics (Electro-Optics shared between Electrical Engineering and Engineering Physics), and Metrology programs. The areas covered by these programs include:

Atmospheric Sciences	Modeling and Simulation
Nuclear Weapons and Effects	Space Weather Research
Counterproliferation of Weapons of Mass Destruction	Lasers and Electro-Optics
Electronic and Photonic Materials	

The Department of Operational Sciences invites MS thesis suggestions and topics within the areas of operations research and logistics management. The following research specialties are covered by the Department:

Campaign Planning and Execution	Decision and Risk Analysis
Information Operations/Information Warfare	Operational Modeling and Simulation
Operational Problems and Heuristic Modeling	Statistical Analysis
Transportation and Strategic Mobility	

The Department of Systems and Engineering Management is seeking thesis topic proposals for the Graduate Engineering and Environmental Management (GEEM) and Graduate Acquisition Management (GAQ) programs. The following research specialties are covered by the Department:

Applied Environmental Sciences	Information Resource Management
Cost Analysis	Program and Contract Management
Contract Management	Quantitative Decision Making
Environmental Systems Analysis and Management	Systems and Software Systems Management
	Human Resource Management

The Department of Aeronautics and Astronautics invites MS thesis suggestions and topics within the area of aerospace vehicles (which includes aircraft and spacecraft). The Department covers the following research specialties:

Computational Fluid Dynamics	Dynamics and Control
Materials and Structural Analysis	Propulsion Systems
Systems Engineering	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 and applications of one or more faculty.
- Read through the list of recent graduates' thesis 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 thesis topic. 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 thesis 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 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 enrsta@afit.edu.

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

THESIS TOPIC PROPOSAL FORMAT

1. **THESIS 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 page 7, was sent to each sponsor of a master's thesis and doctoral dissertation project during FY 2000 to determine the projects contribution, significance and cost avoidance. Detailed results of the questions asked are shown in Table 1.4. The data in this table are based on 53 questionnaires returned out of the 169 questionnaires mailed.

Table 1.1: Sponsor Assessment of AFIT Research

QUESTION	EN
Did this research contribute to a current Air Force/DoD project?	98%
The thesis work was: Highly significant Significant Slightly significant Not significant	26% 59% 15% 0%
Avg. Man-years of effort saved	1.9
Average cost avoided per thesis/dissertation	\$159,450
Total cost avoided for all theses and dissertations sponsored	\$26,946,910
Rank of respondents Colonel (GM-15) Lt Col (GM-14) Major (GM-13) Captain (GS-12) Other	25% 38% 25% 9% 3%



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 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. These 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 FY00, these output measures are shown in Table 1.1 and in Figure 1.1.

Table 2.1: Faculty Research and Consulting Output

Graduate School Department	Number of Faculty	Refereed Publications	Other Publications	Presentations	Funded Research Projects	Significant Consultations	Masters Theses Advised	Doctoral Disserts. Advised
Math (ENC)	10	16	8	17	8	1	2	0
Elec (ENG)	23	23	68	69	42	53	51	3
Phys (ENP)	20	16	10	35	22	1	26	2
Op Sc (ENS)	17	10	25	57	31	10	30	1
Envir (ENV)	16	8	7	10	8	2	28	0
Aero (ENY)	17	15	14	10	30	9	24	2
Total	103	88	132	198	141*	76	161	8

*There were 105 separate projects, however, some projects had multiple faculty contributions

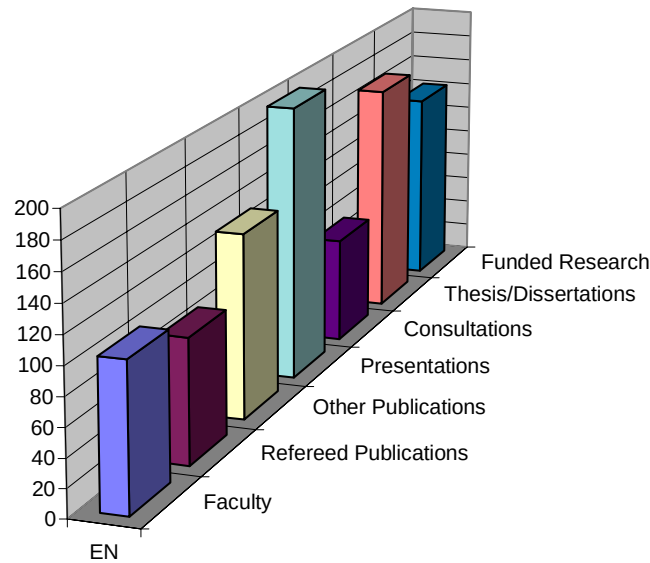


Figure 2.1: Research Output Measures

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 87% of all theses and dissertations listed in Table 1.2 were externally sponsored by Air Force, DoD and Government agencies. In addition, most of the research projects and consultations were carried out for Air Force and DoD units. The data are summarized in Table 1.2 and Figure 1.2.

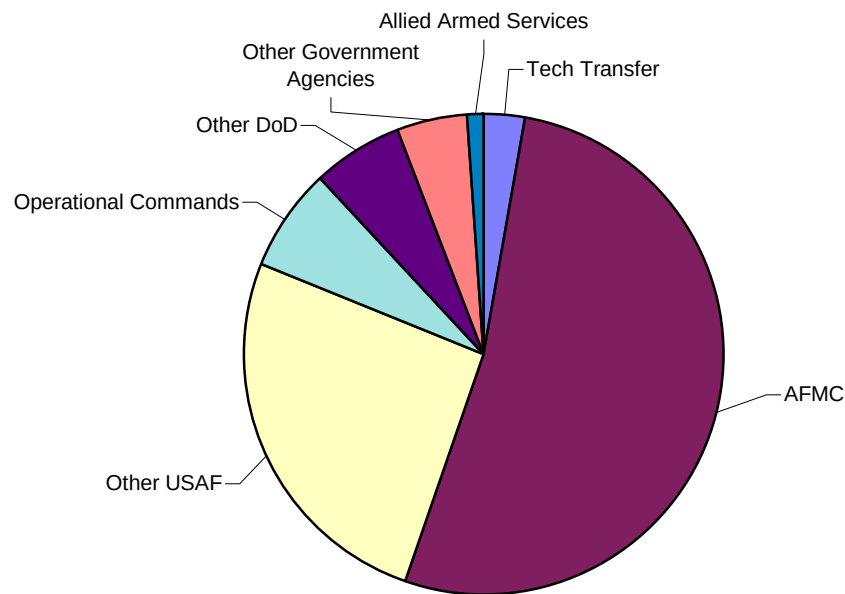


Figure 2.2: Sponsors of AFIT Theses and Dissertations

Table 2.2: Sponsorship of AFIT Research

SPONSOR ORGANIZATION	Masters' Theses	PhD Dissertation	Funded Research	Significant Consultations
AIR FORCE	5		7	1
AIR COMBAT COMMAND				
Air Force Information Warfare Center	2			
Command and Control Battle lab	1			
UAV Battle lab	2			
AIR EDUCATION & TRAINING COMMAND	1		1	1
Air Force Institute of Technology	15	1		
AIR FORCE MATERIEL COMMAND	2			
Aeronautical Systems Center	7		2	2
Air Force Research Laboratory	56	4	24	35
Air Force Office of Scientific Research	15	3	47	
Space & Missile Systems Center	1			
Air Force Flight Test Center	1			
75 th Operations Support Squadron	1			
746 th Test Squadron	2		1	
AIR FORCE SPACE COMMAND				1
Space Warfare Center	1			
AIR MOBILITY COMMAND	5			1
Air Mobility Warfare Center	1			
AIR NATIONAL GUARD	1			
USAF FIELD OPERATING AGENCIES				
Air Force Civil Engineer Support Agency	1			
Air Force Studies Analyses Agency	1			
Air Force Technical Applications Center	2		1	
Air Force Weather Agency	5			
45 th Weather Squadron	6			
USAF DIRECT REPORTING UNIT				
Air Force Communication Agency	6		1	9
ARMY			1	
US Army Logistics Management College				1
US Army Recruiting Command	1			
US Army Safety Center	1			
DEPARTMENT OF DEFENSE			3	1
Defense Advanced Research Projects Agency	3		3	4
Defense Intelligence Agency	1			
Defense Threat Reduction Agency	1			1
Office of Secretary of Defense	2			4
USSTRATCOM	2		1	
NATIONAL SECURITY AGENCY	8		2	2
DAYTON AREA GRADUATE STUDIES INSTITUTE	5		9	5
EGYPTIAN AIR FORCE	2			
OTHERS			2	8
TOTALS	166*	8	105	76

*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 1.3 and Figure 1.3 summarize outside funding for FY 2000.

Table 2.3: Sponsoring Organizations for Funded Research

Sponsoring Organization	Funded Projects	Dollars (\$)*
Air Force Research Lab (AFRL)	24	867,647
AFOSR	47	1,400,827
Other AFMC	3	23,000
Other USAF	10	347,316
Other DOD	8	221,000
NSA	2	20,000
Tech Transfer (CRDAs)	11	336,136
TOTAL	105	3,215,926**

* Includes carry over funding from FY99 of \$634,161.

**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 \$8 million.

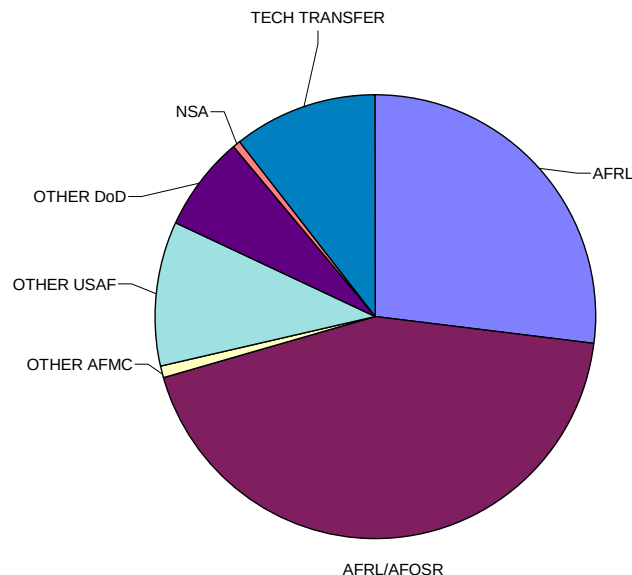


Figure 2.3: Funded Research for Fiscal Year 2000

2.4 FACULTY FELLOWS

BRIDGMAN, CHARLES J., Professor Emeritus of Nuclear Engineering, Dept of Engineering Physics, (AFIT/ENP); Fellow of the American Nuclear Society.

BROWN, WILLIAM M., Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

D'AZZO, JOHN J., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

FRANKE, MILTON E., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics (AFIT/ENY); Fellow of the American Society of Mechanical Engineers.

HOUPIS, CONSTANTINE H., Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

MALL, SHANKAR, Air Force Research Laboratory, Professor, Department of Aeronautics and Astronautics, (AFIT/ENY); Fellow of the American Society of Mechanical Engineers.

MAYBECK, PETER S., Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

PACHTER, MEIR, Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

PALAZOTTO, ANTHONY N., Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); Fellow of the American Society of Civil Engineers.

TORVIK, PETER J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Department of Aeronautics and Astronautics, (AFIT/ENY); Fellow of the American Institute of Aeronautics and Astronautics, Fellow of American Society of Mechanical Engineers.

2.5 PROFESSIONAL CERTIFICATION

BROTHERS, HEIDI S., P.E., Professional Engineer, State of Oregon and California, C44500

BROWN, WILLIAM M., P.E., Professional Engineer, State of Michigan, H-483156

CHAN, YUPO, P.E., Professional Engineer, Commonwealth of Pennsylvania, PE-024730-E

CHRISSIS, JAMES W., P.E., Professional Engineer, State of Florida, 0037247

D'AZZO, JOHN J., P.E., Professional Engineer, State of Ohio, E-12550

GOLTZ, MARK N., DEE, Diplomat Environmental Engineer, American Academy of Environmental Engineers,
Hazardous Waste Management Specialty Certification

GOLTZ, MARK N., P.E., Professional Engineer, State of Minnesota, 13978

GUNSCH, GREGG H., P.E., Professional Engineer, State of Ohio, 56828

HOUPIS, CONSTANTINE H., P.E., Professional Engineer, State of Ohio, E-19084

JODOIN, VINCENT J., P.E., Professional Engineer, State of Ohio, E-57166

PALAZOTTO, A., P.E., Professional Engineer, State of Ohio, E-39937

PERRAM, GLEN, P.E., Professional Engineer, State of Ohio, E-060534

QUINN, DENNIS W., P.E., Professional Engineer, State of Ohio, E-056873

SPENNY, CURTIS H., P.E., Professional Engineer, State of Ohio, E-038759

3. CONTRIBUTIONS TO THE AIR FORCE

3.1 DOCTORAL DISSERTATIONS

Alsing, Stephen G. *The Evaluation of Competing Classifiers*. AFIT/DS/ENS/00-01. Faculty Advisor: Dr. Kenneth W. Bauer, Jr., DSN: 785-6565, ext 4328. Sponsor: AFRL/SNAT.

Hamrick, Joseph L. *Effects of Foreign Object Damage From Small Hard Particles On The High-Cycle Fatigue Life of Ti-6Al-4V*. AFIT/DS/ENY/99-02. Faculty Advisor: Dr. Shankar Mall, DSN: 785-3636, ext 4587. Sponsor: AFRL/MLLN.

Mac Lachlan, Michael J. *Computational Methods for Quantum Reactive Scattering in One Dimension*. AFIT/DS/ENP/99-02. Faculty Advisor: Dr. David Weeks, DSN: 785-3636, ext 4561. Sponsor: AFRL/AFOSR/NL.

Oppenheimer, Michael W. *Algorithm Development for On-Line Control of the Airborne Laser*. AFIT/DS/ENG/00-02. Faculty Advisor: Dr. Meir Pachter, DSN: 785-3636, ext 4593. Sponsor: AFRL/DEBA.

Perel, Victor *Three-Dimensional Dynamic Stress Analysis of Sandwich Plates*. AFIT/DS/ENY/00-02. Faculty Advisor: Dr. Anthony N. Palazotto, DSN: 785-3636, ext 4599. Sponsor: AFRL/AFOSR.

Salah, Moatz M. *Turbo Codes for Wireless Mobile Communication Systems Applications*. AFIT/DS/ENG/00-01. Faculty Advisor: Major Richard A. Raines, DSN: 785-3636, ext 4715.

SanGregory, Samuel L. *Approximation and Optimization of an Auditory Model for Realization in VLSI Hardware*. AFIT/DS/ENG/99-07. Faculty Advisor: Major Charles P. Brothers, DSN: 785-3636, ext 4618. Sponsor: AFRL/HECA.

Scott, Michael B. *Electrical and Optical Characterization of Intrinsic and Ion-Implantation Induced Defects in 6H- and 4H-SiC*. AFIT/DS/ENP/99-04. Faculty Advisor: Dr. Yung Kee Yeo, DSN: 785-3636, ext 4532. Sponsor: AFRL/AFOSR/NE.

3.2 MASTERS THESES BY PROGRAM

3.2.1 ACQUISITION MANAGEMENT

Burke, David A. *Towards a Game Theory Model of Information Warfare*. AFIT/GSS/LAL/99D-1. Faculty Advisor: Maj David P. Biros, DSN: 785-3636, ext 4826. Sponsor: HQ AFIWC/EA.

3.2.2 AERONAUTICAL ENGINEERING

Boatwright, Joshua T. *Finite Element Analysis of a Composite Cylindrical Shell with a Cutout Under a Fatigue Load*. AFIT/GAE/ENY/00M-03. Faculty Advisor: Dr. Anthony N. Palazotto, DSN: 785-3636, ext 4599. Sponsor: AFRL/AFOSR/NA.

Cseke, Peter. *Modeling Piezoceramic Twist Actuation in Single-Cell Anisotropic Torque Box of Low-Observable UAV Wing*. AFIT/ENY/GAE/00M-4. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFIT.

Daetz, Daniel D. *Development of a Biodynamic Interference Suppression Algorithm for a Helmet-Mounted Display Tracking Task in the Presence of Aircraft Buffet*. AFIT/GAE/ENY/00M-02. Faculty Advisor: Dr. Bradley S. Liebst, DSN: 785-3636, ext 4636. Sponsor: AFRL/HECV.

Duffield, Colin J. *An Experimental Investigation on Periodic Forced Vibrations of a Bladed Disk*. AFIT/GAE/ENY/00M-5. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFRL/AFOSR.

Hall, James K. *Three Dimensional Formation Flight Control*. AFIT/GAE/ENY/00M-06. Faculty Advisor: Dr. Meir Pachter, DSN: 785-3636, ext 4593. Sponsor: AFRL/VACA.

Hopper, David R. *Measurements of the Effects of Tunnel Wall Proximity on the Velocity Field Upstream of a Rod With Vortex Shedding in Low-Speed Flow*. AFIT/GAE/ENY/00M-07. Faculty Advisor: Dr. Paul I. King, DSN: 785-3636, ext 4628. Sponsor: AFRL/AFOSR/NA.

Jones, Keith W. *Finite Element Model Updating Using Antiresonant Frequencies*. AFIT/GAE/ENY/00M-08. Faculty Advisor: Lt Col Jeffrey Turcotte, DSN: 785-3636, ext 4597. Sponsor: AFRL/VSDV.

Pendleton, Ryan R. *Use of Unusual Aircraft Orientations to Generate Low Observable Routes*. AFIT/GAE/ENY/00M-09. Faculty Advisor: Dr. C.H. Spenny, DSN: 785-6565, ext 4320. Sponsors: ASC/RAV and AFRL/MNGN.

Pritchard, David E. *Dynamic Route Replanning and Retasking of Unmanned Aerial Reconnaissance Vehicles*. AFIT/GAE/ENY/00M-10. Faculty Advisor: Dr. C.H. Spenny, DSN: 785-6565, ext 4320. Sponsor: ASC/RAV.

Schwabacher, Gregory J. *Computational Fluid Dynamics Testing For Drag Reduction Of An Aircraft Laser Turret*. AFIT/GAE/ENY/00M-11. Faculty Advisor: Maj Jeffrey Bons, DSN: 785-255-3636, ext 4643. Sponsor: AFRL/SN.

Thornburg, Jefery T. *Simulations of Flowing Supercritical n-Decane*. AFIT/GAE/ENY/00M-12. Faculty Advisor: Lt Col Jeffery K. Little, (334) 953-7848. Sponsor: AFRL/PRSF.

Thurling, Andrew J. *Improving UAV Handling Qualities Using Time Delay Compensation*. AFIT/GAE/ENY/00M-01. Faculty Advisor: Prof Bradley Liebst, DSN: 785-3069. Sponsor: USAF Test Pilot School.

3.2.3 APPLIED MATHEMATICS

Anderson, Gregg T., *A Numerical Simulation of a Carbon Black Suspension Cell via a Time-Reversed, Double Layer Compute Algorithm*. AFIT/GAM/ENC/99D-01. Faculty Advisor: Prof William P. Baker, DSN: 785-3636, ext 4517. Sponsor: AFRL/MLPJ.

3.2.4 APPLIED PHYSICS

Acebal, Ariel O. *Testing of the New USGS K Index Algorithm at Bear Lake Observatory*. AFIT/GAP/ENP/00M-01. Faculty Advisor: Maj Devin Della-Rose, DSN: 785-3636, ext 4514. Sponsor: AFWA.

Doser, Kelly B. *Quantifying the Protonospheric Effect on PRISM*. AFIT/GAP/ENP/00M-02. Faculty Advisor: Dr. William Bailey, DSN: 785-3636, ext 4501. Sponsor: AFRL/VSBP.

Myers Jr., James W. *Spatially Resolved Temperature Determination in I₂ Gas Using Doppler-Limited Saturation Spectroscopy*. AFIT/GAP/ENP/00M-03. Faculty Advisor: Lt Col Glen Perram, DSN: 785-3636, ext 4504. Sponsor: AFRL/DEC.

Scott, M. D. *Validation of the Ionospheric Forecast Model (IFM) Version 3*. AFIT/GAP/ENP/00M-04. Faculty Advisor: Dr. David Weeks, DSN: 785-3636, ext 4561. Sponsor: SMC Det 11.

3.2.5 ASTRONAUTICAL ENGINEERING

Fulton, Joseph M. *Attitude Control and Multimedia Representation of Air Force Institute of Technology's (AFIT'S) Simulation Satellite (SIMSAT)*. AFIT/GA/ENY/00M-01. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFIT/ENY.

Gaeta, Douglas E. *Damage Identification in a Real Structure Using Resonant and Anti-Resonant Frequencies*. AFIT/GA/ENY/00M-02. Faculty Advisor: Lt Col Jeffrey Turcotte, DSN: 785: 3636, ext 4597. Sponsor: AFRL/VSD.

Jarosh, Julian R. *Active and Adaptive Control for Payload Launch Vibration Isolation*. AFIT/GA/ENY/00M-03. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFRL/VSDV.

McFarland, Charles B. *Investigation Into The Adaptation Of A Steam Injector For Use On A Liquid Rocket Engine*. AFIT/GA/ENY/00M-04. Faculty Advisor: Lt Col J. K. Little, DSN: 785-3069. Sponsor: AFIT/ENY.

Wagner, John W. *Optical Metrology of Adaptive Membrane Mirrors*. AFIT/GA/ENY/00M-05. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFRL/AFOSR.

3.2.6 COMPUTER ENGINEERING

Arslan, Musa Serdar *A Methodology for Integrating Tools in a Web-Based Environment*. AFIT/GCE/ENG/00J-01. Faculty Advisor: Professor Thomas C. Hartrum, DSN: 785-3636, ext 4581. Sponsor: AFIT/RRD.

Harmer, Paul K. *A Distributed Agent Architecture for a Computer Virus Immune System*. AFIT/GCE/ENG/00M-02. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/AFOSR/NM.

Marsh, David W. *Formal Object State Model Transformations for Automated Agent System Synthesis*. AFIT/GCE/ENG/00M-03. Faculty Advisor: Dr. Thomas C. Hartrum, DSN: 785-3636, ext 4581. Sponsor: AFRL/AFOSR/NM.

Sezer, Ergin *Mission Route Planning with Multiple Aircraft & Targets Using Parallel A* Algorithm*. AFIT/GCE/ENG/00M-04. Faculty Advisor: Prof Gary B. Lamont, DSN: 785-3450, ext 4718. Sponsor: AFRL/SNAT.

3.2.7 COMPUTER SYSTEMS

- Berridge, Walter T. *Extracting Mission Semantics from Unmanned Aerial Vehicle Telemetry and Flight Plans*. AFIT/GCS/ENG/00M-01. Faculty Advisor: Maj Michael Talbert, DSN: 785-6565, ext 4280. Sponsor: AFRL/IFEC.
- Buckwalter, Steven R. *Generating Executable Persistent Data/Retrieval Code from Object-Oriented Specifications*. AFIT/GCS/ENG/00M-02. Faculty Advisor: Maj Robert Graham, DSN: 785-3636, ext 4595. Sponsor: AFRL/IFTD.
- Cochran, Jordon T. *Steganographic Computer Warfare*. AFIT/GCS/ENG/00M-03. Faculty Advisor: Dr. Henry B. Potoczny, DSN: 785-6565, ext 4282. Sponsor: NAIC/TAIF.
- Conkling, Stephen R. *A Comparative Analysis of Mobility Management Schemes in a Low Earth Orbit Satellite Network*. AFIT/GCS/ENG/00M-04. Faculty Advisor: Maj Richard Raines, DSN: 785-3636, ext 4715. Sponsor: AFCA/ITAI.
- Cornn, Gary L., Jr. *An Object-Oriented Repository-Based Software Synthesis System*. AFIT/GCS/ENG/00M-05. Faculty Advisor: Maj Robert Graham, DSN: 785-3636, ext 4595. Sponsor: AFRL/IFTD.
- Damp, Kevin T. *An Analysis of the Effectiveness of a Constructive Induction-Based Virus Detection Prototype*. AFIT/GCS/ENG/00J-01. Faculty Advisor: Dr. Gregg H. Gunsch, DSN: 785-6565, ext 4281. Sponsor: AFRL/AFOSR/NM.
- Douglas, James S. *Distributed Object System Engineering for Terminal Aerodrome Forecast Validation and Metrics Processing*. AFIT/GCS/ENG/00M-007. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: HQ AFWA/XP.
- Goeringer, Michael L. *Three-Dimensional Data Visualization of Electronic Military Intelligence Using the Project Broadsword System*. AFIT-GCS-ENG-00M-08. Faculty Advisor: Lt Col Timothy Jacobs, DSN: 785-3636, ext 4279. Sponsor: AFRL/ RRS IFED.
- Joga, Meriellen C. *Data Warehouse Techniques to Support Global On-Demand Weather Forecast Metrics*. AFIT/GCS/ENG/00M-09. Faculty Advisor: Dr. Henry B. Potoczny, DSN: 785-6565, ext 4282. Sponsor: HQ AFWA/XP.
- Kern, Sean G. *A Human-Centered Approach for Designing Decision Support Systems*. AFIT/GCS/ENG/00M-10. Faculty Advisor: Dr. Henry B. Potoczny, DSN: 785-6565, ext 4282. Sponsor: 2SWS/DOUE.
- Kurkowski, Stuart H. *An Information Visualization Solution for the Analysis of the AFM Simulation Output Data*. AFIT/GCS/ENG/00M-11. Faculty Advisor: Lt Col Timothy Jacobs, DSN: 785-3636, ext 4279. Sponsor: HQ AMC/XPY.
- Lacey, Timothy H. *A Formal Methodology and Technique for Verifying Communication Protocols in a Multi-Agent Environment*. AFIT/GCS/ENG/00M-12. Faculty Advisor: Maj Scott A. DeLoach, DSN: 785-3636, ext 4622. Sponsor: AFRL/AFOSR/NM.
- Lathrop, Dale A. *Viral Computer Warfare Via Activation Engine Employing Steganography*. AFIT/GCS/ENG/00M-14. Faculty Advisor: Dr. Henry B. Potoczny, DSN: 785-6565, ext 4282. Sponsor: NAIC/TAIF.
- Leon, Darryl N. *An Intelligent User Interface to Support Air Force Weather Product Generation and Automated Metrics*. AFIT/GCS/ENG/00M-15. Faculty Advisor: Major Michael L. Talbert, DSN: 785-3636, ext 4280. Sponsor: HQ AFWA/XP.

McDonald, Jeffrey T. *Agent Based Framework for Collaborative Engineering Model Development*. AFIT/GCS/ENG/00M-16. Faculty Advisor: Major Michael L. Talbert, DSN: 785-6565, ext 4280. Sponsor: AFRL/SNZW.

Moesner, John F. *A Method of Focusing the Attention of the Decision-Maker on Uncertain Information*. AFIT/GCS/ENG/00M-17. Faculty Advisor: Dr. Gregg Gunsch, DSN: 785-6565, ext 4182. Sponsor: NAIC/TAIT.

Muller, Alexander, Jr. *A Comparative Analysis of Proposed Mobility Support Schemes for IP Multicasting*. AFIT/GCS/ENG/00J-02. Faculty Advisor: Maj Richard A. Raines, DSN: 785-3636, ext 4715. Sponsor: AFCA/ITAI.

Neville, Brett D. *A Study of The Simple Network Management Protocol For PVC Configuration in ATM Networks*. AFIT/GCS/ENG/00J-03. Faculty Advisor: Major Richard A. Raines, DSN: 785-3636, ext 4715. Sponsor: AFCS/ITAI.

Pearson, Joseph C. *An Improved Algorithm for Translating Relational Schemas into an Object Model*. AFIT/GCS/ENG/00J-04. Faculty Advisor: Dr. Thomas C. Hartrum, DSN: 785-3636, ext 4581. Sponsor: DARPA/ISO.

Raphael, Marc J. *Active Multispectral Bidirectional Reflectance Distribution Function Measurement System*. AFIT/GCS/ENG/00M-21. Faculty Advisor: Major Scott A. DeLoach, DSN: 785-3636, ext 4622. Sponsor: AFRL/AFOSR/NM.

Robinson, David J. *A Component Based Approach to Agent Specification*. AFIT/GCS/ENG/00M-22. Faculty Advisor: Major Scott A. DeLoach, DSN: 785-3636, ext 4622. Sponsor: AFRL/AFOSR/NM.

Ward, Jason T. *Enhancing a Virtual Distributed Library User Interface Via Server-Side User Profile Caching*. AFIT/GCS/ENG/00M-23. Faculty Advisor: Major Michael L. Talbert, DSN: 785-6565, ext 4280. Sponsor: AFRL/SNAS.

Watkins, Evan T. *Improving the Analyst and Decision-Maker's Perspective Through Uncertainty Visualization*. AFIT/GCS/ENG/00M-24. Faculty Advisor: Dr. Gregg Gunsch, DSN: 785-6565, ext 4182. Sponsor: NAIC/TAIT.

Williams, Darin L. *Explicitly Modeling Hierarchically Heterogeneous Software Architectures in an Object-Oriented Formal Transformation System*. AFIT/GCS/ENG/00M-25. Faculty Advisor: Major Robert P. Graham, DSN: 785-3636, ext 4595. Sponsor: AFRL/IFTD.

Wood, Mark F. *Multiagent Systems Engineering: A Methodology for Analysis and Design of Multiagent Systems*. AFIT/GCS/ENG/00M-26. Faculty Advisor: Major Scott A. DeLoach, DSN: 785-3636, ext 4622. Sponsor: AFRL/AFOSR/NM.

3.2.8 ELECTRICAL ENGINEERING

Akers, Geoffrey A. *Low Band Direction Finding Using an Ensemble of Structurally Integrated Antennas*. AFIT/GE/ENG/00M-01. Faculty Advisor: Dr. Andrew J. Terzuoli, Jr., DSN: 785-3636, ext 4717. Sponsor: AFRL/SNRP.

Ashby, Michael R. *Tool-Based Integration and Code Generation of Object Models*. AFIT/GE/ENG/00M-02. Faculty Advisor: Dr. T. C. Hartrum, DSN: 785-3636, ext 4581. Sponsor: AFRL/SNZW.

Banker, David M. *Modeling and Simulation of Communication Systems in OPNET*. AFIT/GE/ENG/00M-03. Faculty Advisor: Dr. Michael Temple, DSN: 785-3636, ext 4703. Sponsor: HQ AFCA/ITAT.

Blake, Travis F. *Investigation Of Ge₂Te₂sb₅ Chalcogenide Thin Film For Use As An Analog Memory*. AFIT/GE/ENG/00M-04. Faculty Advisor: Maj Charles P. Brothers, Jr., DSN: 785-3636, ext 4618. Sponsor: AFRL/VSSE.

Bracy, Brian L. *Evaluation of a Method for Kinematic GPS Carrier-Phase Ambiguity Resolution Using a Network of Reference Receivers*. AFIT/GE/ENG/00M-5. Faculty Advisor: Maj John F. Raquet, DSN: 785-3636, ext 4580. Sponsor: 746th Test Squadron.

Broadbuss, James T. *Stochastic Modeling-Based DGPS Estimation Algorithm*. AFIT/GE/ENG/00M-06. Faculty Advisor: Dr. Meir Pachter, DSN: 785-3636, ext 4593. Sponsor: AFRL/SNAR.

Cekic, Orhan *Development of a Real Time Guidance System for a Kinematic Test Vehicle*. AFIT/GE/ENG/00M-21. Faculty Advisor: Maj John Raquet, DSN: 785-3636, ext 4580. Sponsor: AFRL/SNAR.

Corbell, Phillip M. *Design and Validation of an Accurate GPS Signal and Receiver Truth Model for Comparing Advanced Receiver Processing Techniques*. AFIT/GE/ENG/00M-07. Faculty Advisor: Lt Col Mikel Miller, DSN: 785-6565, ext 4278. Sponsor: AFRL/SNAR.

Formwalt, Byron P. *Realtime Color Stereovision Processing*. AFIT/GE/ENG/00M-08. Faculty Advisor: Lt Col Mikel Miller, DSN: 785-6565, ext 4278. Sponsor: AFRL/SNAT.

Gebhardt, Matthew J. *A Comparative Analysis of Cockpit Display Development Tools*. AFIT/GE/ENG/00M-10. Faculty Advisor: Lt Col Timothy Jacobs, DSN: 785-6565, ext 4279. Sponsor: AFRL/IFSC.

Mellon, George T., II. *Simulation and Analysis of a Time Difference of Arrival GPS Jammer Location System*. AFIT/GE/ENG/00M-11. Faculty Advisor: Maj John Raquet, DSN: 785-3636, ext 4580. Sponsor: 746th Test Squadron.

Okuyucu, Ahmet *Effects of Jamming on Radars*. AFIT/GE/ENG/00M-22. Faculty Advisor: Dr. Vittal Pyati, DSN: 785-3636, ext 4620. Sponsor: AFRL/SNZW.

Richards, Daniel R., Jr. *Non-Uniformly Spaced Array Elements*. AFIT/GE/ENG/00M-14. Faculty Advisor: Maj Peter Collins, DSN: 785-6565, ext 4304. Sponsor: AFRL/SNRP.

Roberts, Marcus L. *Synchronization of a Transform Domain Communication System*. AFIT/GE/ENG/00M-15. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNRW.

Saville, Michael A. *Investigation of Conformal High-Impedance Ground Planes*. AFIT/GE/ENG/00M-17. Faculty Advisor: Maj Peter Collins, DSN: 785-6565, ext 4304. Sponsor: AFRL/SNRP.

Stringer, Jeremy P. *The Air Force Institute of Technology (AFIT) Micro Electro-Mechanical Systems (MEMS) Interferometric Gyroscope (MiG)*. AFIT/GE/ENG/00M-18. Faculty Advisor: Lt Col Mikel Miller, DSN: 785-6565, ext 4278. Sponsor: AFRL/SN.

Thomson, Steven A. *Validation and Verification of Formal Specifications in Object-Oriented Software Engineering*. AFIT/GE/ENG/00S-01. Faculty Advisor: Maj Robert P. Graham, Jr., DSN: 785-3636, ext 4595. Sponsor: AFRL/IFTD.

Zumwalt, Michel P. *Robust High Range Resolution Radar for Target Classification*. AFIT/GE/ENG/00M-19. Faculty Advisor: Dr. Steven C. Gustafson, DSN: 785-3636, ext 4598. Sponsor: AFRL/SN.

Zwickel, Ronald J. *A Performance Analysis of a Joint LMDS/Satellite Communication Network*. AFIT/GE/ENG/00M-20. Faculty Advisor: Maj Richard A. Raines, DSN: 785-3636, ext 4715. Sponsor: AFCA/ITAL.

3.2.9 ELECTRO-OPTICS

Choi, B.J. *Investigation of Laser Beam Combining and Cleanup via Seeded Stimulated Brillouin Scattering in Multimode Optical Fibers*. AFIT/GEO/ENP/00M-01. Faculty Advisor: Dr. Won Roh, DSN: 785-3636, ext 4509. Sponsor: AFRL/AFOSR.

Crabtree, Peter N. *Multi-Conjugate Adaptive Optics for the Compensation of Amplitude and Phase Distortions*. AFIT/GEO/ENG/00M-01. Faculty Advisor: Dr. Steven C. Gustafson, DSN: 785-3636, ext 4598. Sponsor: AFRL/DES.

Glavic, F. J. *Tunable Mid-IR Optical Parametric Oscillator Using Periodically Poled Rubidium Titanyl Arsenate*. AFIT/GEO/ENP/00M-2. Faculty Advisor: Dr. Won Roh, DSN: 785-3636, ext 4509. Sponsor: AFRL/SNJ.

Proctor, Mark J. *Active Multispectral Bidirectional Reflectance Distribution Function Measurement System*. AFIT/GEO/ENG/00M-02. Faculty Advisor: Major Eric P. Magee, DSN: 785-4604, ext 4023. Sponsor: AFRL/SNJ.

Sperl, Daniel E. *Post-Processing Resolution Enhancement of Open Skies Photographic Imagery*. AFIT/GEO/ENG/00M-03. Faculty Advisor: Dr. Steven C. Gustafson, DSN: 785-3636, ext 4598. Sponsor: NAIC/GTN.

3.2.10 ENGINEERING AND ENVIRONMENTAL MANAGEMENT

Albritton, Patrick M. *Methodology for Evaluating the Impact of Aircraft Shelter Systems on Aircraft Operations at Forward Operating Locations*. AFIT/GEE/ENS/00M-01. Faculty Advisor: Maj W. Paul Murdock. Sponsor: ASC/YS.

Buzo, Christopher D. *A Decision Support Tool to Aid Campaign Planners in Selecting Combat Aircraft for Theater Crisis*. AFIT/GEE/ENS/00M-02. Faculty Advisor: Lt Col Alan Johnson, DSN: 785-6565, ext 4284. Sponsor: DARPA/ISO.

Carlson, David W. *Factors Affecting Perceptions of Ethics within Organizations: A Case Study of Organizations within Aeronautical Systems Center (ASC)*. AFIT/GEE/ENV/00M-01. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: ASC/HRMB.

Davis, Cynthia M. *Linking Engineer Career Orientation and Human Resource Management Practices: Does Fit Affect Retention?*. AFIT/GEE/ENV/00M-02. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: HQ AFCEA/CEO.

Eck, Craig P. *Effects of Moisture Content in Solid Waste Landfills*. AFIT/GEE/ENV/00M-03. Faculty Advisor: Dr. M. L. Shelly, DSN: 785-2998. Sponsor: AFIT.

Feng, Peter P. *Modeling the Effect of Nonlinear and Rate-limited Sorption on the Natural Attenuation of Chlorinated Ethenes*. AFIT/GEE/ENV/00M-04. Faculty Advisor: Dr. Mark N. Goltz, DSN: 785-255-3636, ext 4638. Sponsor: AFRL/MLQ.

Ferland, Derek R. *In Situ Treatment of Chlorinated Ethene-Contaminated Groundwater Using Horizontal Flow Treatment Wells*. AFIT/GEE/ENV/00M-05. Faculty Advisor: Dr. Mark N. Goltz, DSN: 785-255-3636, ext 4638. Sponsor: AFRL/MLQ.

Fox, Joseph M. *Chromium Concentration Bias In The Particle Size Distribution Of Primer Overspray*. AFIT/GEE/ENV/00M-06. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: AL/MLQ.

Harris, Rodney C. *Analysis of the Air Force ISO 14001 Pilot Study Conducted by DoD*. AFIT/GEE/ENV/00M-07. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: HQ AETC.

Henry, Elwood. *Cost Analysis Between SABER and Design Bid Build Construction*. AFIT/GEE/ENV/00M-08. Faculty Advisor: Maj Heidi S. Brothers, DSN: 785-3636, ext 4800. Sponsor: AFIT/CESS.

Hoefar, Colby D. *Modeling Chlorinated Ethene Removal in Constructed Wetlands: A System Dynamics Approach*. AFIT/GEE/ENV/00M-09. Faculty Advisor: Dr. Michael L. Shelley, DSN: 785-2998. Sponsor: AFRL/MLQ and DAGSI.

Kennedy, James F. *The Influence of Outsourcing on Job Satisfaction and Turnover Intentions of Air Force Civil Engineer Company Grade Officers*. AFIT/GEE/ENV/00m-10. Faculty Advisor: Maj Mark A. Ward, DSN: 785-3636, ext 4742. Sponsor: HQ USAF/ILEI.

Leighton, Travis K. *Empirical Evaluation of the Civil Engineer Career Pyramid and Career Guidance*. AFIT/GEE/ENV/00M-11. Faculty Advisor: Maj Heidi Brothers, DSN: 785-3636 Ext 4800 and Maj Mark Ward, DSN: 785-3636, ext 4742. Sponsor: AFMC/CE, AFMC/XP and AFIT/CE.

Leonard, Christopher J. *Toxicity of Tolyltriazole to Bacillus Microorganisms*. AFIT/GEE/ENV/00M/12. Faculty Advisor: Prof Charles A. Bleckmann, DSN: 785-3636, ext 4721. Sponsor: ASC/EME.

Mitchell, Heather L. *Toxicity Of Tolyltriazole To Gram-Positive Coccus Microorganisms*. AFIT/GEE/ENV/00M-13. Faculty Advisor: Prof Charles A. Bleckmann, DSN: 785-3636, ext 4721. Sponsor: ASC/EME.

Morgan, Tiffany J. *Chromate Dissociation from Primer Paint in Simulated Lung Fluid*. AFIT/GEE/ENV/00M-14. Faculty Advisor: Maj Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: AL/MLQ.

Stumpe, Brian M. *Organizational and Individual Effects on the Reporting of Wrongdoing in the Workplace*. AFIT/GEE/ENV/00M-15. Faculty Advisor: Maj Mark A. Ward, DSN: 785-2998. Sponsor: AFIT.

Suhajda, Sierra H. *A Pharmacokinetic Study Of The Effects Of Stress On Chemical Exposure*. AFIT/GEE/ENV/00M-16. Faculty Advisor: Dr. Michael L. Shelley, DSN: 785-3636, ext 4594. Sponsor: AFRL/HEST.

Williamson, Chaz M. *Use of Genetic Algorithms to Characterize Groundwater Contamination Source Areas*. AFIT/GEE/ENV/00M-17. Faculty Advisor: Dr. Mark N. Goltz, DSN: 785-3636, ext 4638. Sponsor: AFRL/MLQ.

3.2.11 ENVIRONMENTAL SCIENCE AND ENGINEERING

Hack, Charles, *Evaporation of Jet Fuels*. AFIT/GES/ENC/99D-01. Faculty Advisor: Prof Dennis W. Quinn, DSN: 785-3636, ext 4522. Sponsor: AFRL/AFOSR/NL.

3.2.12 INFORMATION RESOURCE MANAGEMENT

Abell, Sean P. *Implementation of Speech Recognition Software for Text Processing: An Exploratory Analysis*. AFIT/GIR/LAS/99D-1. Faculty Advisor: Maj Michael G. Morris, DSN: 785-3636, ext 4578. Sponsor: AFRL.

Cunningham, Franklin E., Jr. *Network Security versus Network Connectivity: A Framework for Addressing the Issues Facing the Air Force Medical Community*. AFIT/GIR/LAS/99D-2. Faculty Advisor: Maj David P. Biros, DSN: 785-3636, ext 4826. Sponsor: HQ AFCA/GCI.

Fiorello, Alan P. *Power, Performance, and Perception (P³): Integrating Usability Metrics and Technology Acceptance Determinants to Validate a New Model for Predicting System Usage*. AFIT/GIR/LAS/99D-3. Faculty Advisor: Maj Michael G. Morris, DSN: 785-3636, ext 4578. Sponsor: AFRL/HECA.

Heberlie, Brian J., and Mary O. Tolbert *Impact of Actual Facilitator Alignment, Co-Location, and Video Intervention on the Efficacy of Distributed Group Support Systems*. AFIT/GIR/LAS/99D-4. Faculty Advisor: Maj Paul W. Thurston, DSN: 785-6565, ext 4315. Sponsor: AFRL/HESS.

- Horony, Mark D. *Information Systems Incidents: The Development of a Damage Assessment Model.* AFIT/GSS/LAL/99D-5. Faculty Advisor: Maj David P. Biros, DSN: 785-3636, ext 4826. Sponsor: OASD/C3I.
- Kitchen, Robert C. *Why Didn't You Tell Me?: Toward Building a Model of Why Information is not Shared Well in Organizations.* AFIT/GIR/LAS/99D-6. Faculty Advisor: Dr Alan R. Heminger, DSN: 785-3636, ext 4797. Sponsor: AFIT.
- Little, Rex W. *An Analysis of Training Adequacy and Additional Training Requirements as Perceived by Communications and Information Officers.* AFIT/GIR/LAS/99D-7. Faculty Advisor: Maj David P. Biros, DSN: 785-3636, ext 4826. Sponsor: HQ AF/SCXP.
- Oxborrow, Glade G. *Defining Virtual Interactions: A Taxonomy for Researchers and Practitioners.* AFIT/GIR/LAS/99D-8. Faculty Advisor: Maj Michael G. Morris, DSN: 785-3636, ext 4578. Sponsor: HQ DIA.
- Singer, Kristopher A. *An Assessment of Mentoring Functions and Barriers to Mentoring.* AFIT/GIR/LAS/99D-9. Faculty Advisor: Maj Paul W. Thurston, DSN: 785-6565, ext 4315. Sponsor: AFIT.
- Thorley, Eric J. *A Successful Information Warfare Defense for an Air Force Major Command.* AFIT/GIS/LAL/99D-1. Faculty Advisor: Maj David P. Biros, DSN: 785-3636, ext 4826. Sponsor: HQ AFIWC/EA.

3.2.13 MATERIAL SCIENCE

- McFall, J. L. *Optical Investigation of Molecular Beam Epitaxy $Al_xGa_{1-x}N$ to Determine Material Quality.* AFIT/GMS/ENP/00M-01. Faculty Advisor: Dr. Robert Hengehold, DSN: 785-3636, ext 4502. Sponsor: AFRL/MLPA.
- Miller, Gerald B. *Mechanics of a Functionally-Graded Titanium Matrix Composite.* AFIT/GMS/ENY/00M-01. Faculty Advisor: Dr. Shanker Mall, DSN: 785-3636, ext 4587. Sponsor: AFRL/AFOSR/NA.
- Neslen, C. L. *Chemical Mechanical Polishing Optimization for 4H-SiC.* AFIT/GMS/ENP/00M-02. Faculty Advisor: Dr. Robert Hengehold, DSN: 785-3636, ext 4502. Sponsor: AFRL.
- Steel, Steven G. *Monotonic and Fatigue Loading of an Oxide/Oxide Ceramic Matrix Composite.* AFIT/GMS/ENY/00M-02. Faculty Advisor: Dr. Shanker Mall, DSN: 785-3636, ext 4587. Sponsor: AFRL/MLLN.

3.2.14 METEOROLOGY

- Boll, Elizabeth A. *An Analysis in Cloud-To-Ground Lightning Over Land Versus Water.* AFIT/GM/ENP/00M-01. Faculty Advisor: Maj Gary Huffines, DSN: 785-3636, ext 4511. Sponsor: 75th OSS/OSW.
- Calidonna, M.J. *Extensible Markup Language as a Weather Tool.* AFIT/GM/ENP/00M-02. Faculty Advisor: Lt Col Cecilia Miner. Sponsor: AFRL/IFEB.
- Cloys, K. P. *A Neural Network Solution to Predicting Wind Speed at Cape Canaveral's Atlas Launch Pad.* AFIT/GM/EMP/00M-03. Faculty Advisor: Dr. Michael Walters, DSN: 785-3636, ext 4681. Sponsor: 45 WS/SYR.
- Coleman, L. K. *Use of Climatology to Predict Maximum Wind Speeds at the Kennedy Space Center and Cape Canaveral Air Station.* AFIT/GM/ENP/00M-04. Faculty Advisor: Lt Col Michael Walters, DSN: 785-3636, ext 4681. Sponsor: AFTAC.

- Darwin, M. W. *A 3D Display System for Lightning Detection and Ranging (LDAR) Data*. AFIT/GM/ENP/00M-05. Faculty Advisor: Lt Col Cecilia Miner. Sponsor: PAFB/45 WS/SYR.
- Dickerson, S. N. *An Evaluation of Microburst Prediction Indices for the Kennedy Space Center and Cape Canaveral Air Station (KSC/CCAS)*. AFIT/GM/ENP/00M-06. Faculty Advisor: Lt Col Cecilia Miner. Sponsor: 45th Weather Sqd.
- Goetz, E.C. *Descriptive and Conditional Climatology for Specific Launch Commit Criteria for Cape Canaveral, Florida*. AFIT/GM/ENP/00M-07. Faculty Advisor: Maj Gary Huffines, DSN: 785-3636, ext 4511. Sponsor: 45th WS.
- Holmes, M. W. *Techniques for Forecasting the Cessation of Lightning at Cape Canaveral Air Station and the Kennedy Space Center*. AFIT/GM/ENP/00M-08. Faculty Advisor: Maj Gary Huffines, DSN: 785-3636, ext 4511. Sponsor: 45 Weather Squadron.
- Parsons, T. L. *Determining the Horizontal Distance Distribution of Cloud-to-Ground Lightning*. AFIT/GM/ENP/00M-09. Faculty Advisor: Maj Gary Huffines, DSN: 785-3636, ext 4511. Sponsor: AFRL/XP.
- Renwick, T. G. *Timing of Thunderstorm Occurrence for Cape Canaveral, Florida*. AFIT/GM/ENP/00M-10. Faculty Advisor: Lt Col Cecilia Miner. Sponsor: 45th WS.
- Saul, Jon M. *Atmospheric Temperature Profiles By Ground-Based Infrared Spectrometer Measurements*. AFIT/GM/ENP/00M-11. Faculty Advisor: Lt Col Glen Perram, DSN: 785-3636, ext 4504. Sponsor: AFRL/VSBM.
- Shoemaker, L. C. *Mixed Layer Height Estimates – A Statistical Analysis of Algorithm Performance*. AFIT/GM/ENP/00M-12. Faculty Advisor: Lt Col Michael Walters, DSN: 785-3636, ext 4681. Sponsor: AFTAC.
- Stenger, R. A. *Sensitivity Studies on a Limited Area Mesoscale Model: An Examination of Lateral Boundary Placement, Grid Resolution and Nesting Type*. AFIT/GM/ENP/00M-13. Faculty Advisor: Lt Col Michael Walters, DSN: 785-3636, ext 4681. Sponsor: HQ AFWA.
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- Frederick, Jr. Timothy A. *Performance Evaluation of the Nuclear Facility (NFAC) Source Model for the Hazard Prediction and Assessment Capability (HPAC) Code*. AFIT/GNE/ENP/00M-01. Faculty Advisor: Maj Vincent Jodoin, DSN: 785-3636, ext 4506. Sponsor: DTRA/CP.
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Browne, Kenneth S. *Using RSM, DOE, and Linear Regression to Develop a Metamodel to Predict Cargo Delivery of a Time Phase Force Deployment Document*. AFIT/GOA/ENS/00M-01. Faculty Advisor: Maj Paul Murdock. Sponsor: HQ AMC/XPY.

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Ari, Mehmet M. *Determining The Aircraft Requirement For Turkish Air Mobility System*. AFIT/GOR/ENS/00M-01. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: Egitim Daire Baskanligi.

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Hamill, Jonathan T. *Modelling Information Assurance: A Value Focused Thinking Approach*. AFIT/GOR/ENS/00M-15. Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325. Sponsor: DARPA/ISO/IASET and OSD/OT&E.

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Orson, J. A. *Collection of Detonation Signatures and Characterization of Spectral Features*. AFIT/GSO/ENP/00M-01. Faculty Advisor: Dr. Glen Perram, DSN: 785-3636, ext 4504. Sponsor: NAIC/DXDI.

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Harris, Rodney C. *Analysis of the Air Force ISO 14001 Pilot Study Conducted by DoD*. AFIT/GEE/ENV/00M-07. Faculty Advisor: Maj Michael T. Reh, DSN: 785-3636, ext 4711. Sponsor: HQ AETC.

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Arslan, Musa Serdar *A Methodology for Integrating Tools in a Web-Based Environment*. AFIT/GCE/ENG/00J-01. Faculty Advisor: Professor Thomas C. Hartrum, DSN: 785-3636, ext 4581. Sponsor: AFIT/RRD.

- Cseke, Peter. *Modeling Piezoceramic Twist Actuation in Single-Cell Anisotropic Torque Box of Low-Observable UAV Wing*. AFIT/ENY/GAE/00M-4. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFIT
- Duffield, Colin J. *An Experimental Investigation on Periodic Forced Vibrations of a Bladed Disk*. AFIT/GAE/ENY/00M-5. Faculty Advisor: Maj Gregory S. Agnes, DSN: 785-6565, ext 4317. Sponsor: AFIT.
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- Gaeta, Douglas E. *Damage Identification in a Real Structure Using Resonant and Anti-Resonant Frequencies*. AFIT/GA/ENY/00M-02. Faculty Advisor: Lt. Col Jeffrey Turcotte, DSN: 785: 3636, ext 4597. Sponsor: AFIT/ENY.
- Henry, Elwood. *Cost Analysis Between SABER and Design Bid Build Construction*. AFIT/GEE/ENV/00M-08. Faculty Advisor: Maj Heidi S. Brothers, DSN: 785-3636 , ext 4800. Sponsor: AFIT/CESS.
- Holz, David A. *Constellation Design of Spaced Based-Bistatic Synthetic Aperture Radars*. AFIT/GSO/ENY/00M-03. Faculty Advisor: Prof. W. E. Wiesel, DSN: 785-3636, ext 4312. Sponsor: AFIT.
- Kitchen, Robert C. *Why Didn't You Tell Me?: Toward Building a Model of Why Information is not Shared Well in Organizations*. AFIT/GIR/LAS/99D-6. Faculty Advisor: Dr Alan R. Heminger, DSN: 785-3636, ext 4797. Sponsor: AFIT.
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- *Leighton, Travis K. *Empirical Evaluation of the Civil Engineer Career Pyramid and Career Guidance*. AFIT/GEE/ENV/00M-11. Faculty Advisor: Maj Heidi Brothers, DSN: 785-3636, ext 4800 and Maj Mark Ward, DSN: 785-3636, ext 4742. Sponsor: AFMC/CE, AFMC/XP and AFIT/CE.
- McFarland, Charles B. *Investigation Into The Adaptation Of A Steam Injector For Use On A Liquid Rocket Engine*. AFIT/GA/ENY/00M-04. Faculty Advisor: J. K. Little, DSN: 785-3069. Sponsor: AFIT/ENY.
- Singer, Kristopher A. *An Assessment of Mentoring Functions and Barriers to Mentoring*. AFIT/GIR/LAS/99D-9. Faculty Advisor: Maj Paul W. Thurston, DSN: 785-6565, ext 4315. Sponsor: AFIT.
- Stumpe, Brian M. *Organizational and Individual Effects on the Reporting of Wrongdoing in the Workplace*. AFIT/GEE/ENV/00M-15. Faculty Advisor: Maj Mark A. Ward, DSN: 785-2998. Sponsor: AFIT.

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- Eren, Bahtiyar *A Combined Inventory and Delivery Model for Repairable Items*. AFIT/GOR/ENS/00M-11. Faculty Advisor: Dr. Yupo Chan. Sponsor: AFMC SAO/XPS.
- *Leighton, Travis K. *Empirical Evaluation of the Civil Engineer Career Pyramid and Career Guidance*. AFIT/GEE/ENV/00M-11. Faculty Advisor: Maj Heidi Brothers, DSN: 785-3636, ext 4800 and Maj Mark Ward, DSN: 785-3636, ext 4742. Sponsor: AFMC/CE, AFMC/XP and AFIT/CE.

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Albritton, Patrick M. *Methodology for Evaluating the Impact of Aircraft Shelter Systems on Aircraft Operations at Forward Operating Locations*. AFIT/GEE/ENS/00M-01. Faculty Advisor: Maj W. Paul Murdock. Sponsor: ASC/YS.

Carlson, David W. *Factors Affecting Perceptions of Ethics within Organizations: A Case Study of Organizations within Aeronautical Systems Center (ASC)*. AFIT/GEE/ENV/00M-01. Faculty Advisor: Maj Michael T. Reh, DSN:785-3636, ext 4711. Sponsor: ASC/HRMB.

Leonard, Christopher J. *Toxicity of Tolyltriazole to Bacillus Microorganisms*. AFIT/GEE/ENV/00M/12. Faculty Advisor: Prof Charles A. Bleckmann, DSN: 785-3636 Ext 4721. Sponsor: ASC/EME.

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*Pendleton, Ryan R. *Use of Unusual Aircraft Orientations to Generate Low Observable Routes*. AFIT/GAE/ENY/00M-09. Faculty Advisor: Dr. C.H. Spenny, DSN: 785-6565, ext 4320. Sponsors: ASC/RAV and AFRL/MNGN.

Pritchard, David E. *Dynamic Route Replanning and Retasking of Unmanned Aerial Reconnaissance Vehicles*. AFIT/GAE/ENY/00M-10. Faculty Advisor: Dr. C.H. Spenny, DSN: 785-6565, ext 4320. Sponsor: ASC/RAV.

Trigg, Jr. Jimmie L. *A Study of Morning Radiation Fog Formation*. AFIT/GM/ENP/00M-14. Faculty Advisor: Maj Gary Huffines, DSN: 785-3636, ext 4511. Sponsor: 88th Weather Squadron.

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Boatwright, Joshua T. *Finite Element Analysis of a Composite Cylindrical Shell with a Cutout Under a Fatigue Load*. AFIT/GAE/ENY/00M-03. Faculty Advisor: Dr. Anthony N. Palazotto, DSN: 785-3636, ext 4599. Sponsor: AFRL/AFOSR/NA.

Calhoun, Kevin M. *A Tabu Search for Scheduling and Re-scheduling Combat Aircraft*. AFIT/ENS/GOR/00M-06. Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325. Sponsor: AFRL/AFOSR/NL.

Choi, B.J. *Investigation of Laser Beam Combining and Cleanup via Seeded Stimulated Brillouin Scattering in Multimode Optical Fibers*. AFIT/GEO/ENP/00M-01. Faculty Advisor: Dr. Won Roh, DSN: 785-3636, ext 4509. Sponsor: AFRL/AFOSR.

*Cullenbine, Christopher A. *A Tabu Search Approach to the Weapons Assignment Model*. AFIT-GOR-ENS-00M-08. Faculty Advisor: Lt. Col Mark A. Gallagher, DSN: 785-6565, ext 4335. Sponsor: AFRL/AFOSR/NM and USSTRATCOM/J532.

Damp, Kevin T. *An Analysis of the Effectiveness of a Constructive Induction-Based Virus Detection Prototype*. AFIT/GCS/ENG/00J-01. Faculty Advisor: Dr. Gregg H. Gunsch, DSN: 785-6565, ext 4281. Sponsor: AFRL/AFOSR/NM.

Hack, Charles Eric, *Evaporation of Jet Fuels*. AFIT/GES/ENC/99D-01. Faculty Advisor: Prof Dennis W. Quinn, DSN: 785-3636, ext 4522. Sponsor: AFRL/AFOSR/NL

Harmer, Paul K. *A Distributed Agent Architecture for a Computer Virus Immune System*. AFIT/GCE/ENG/00M-02. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/AFOSR/NM.

Hopper, David R. *Measurements of the Effects of Tunnel Wall Proximity on the Velocity Field Upstream of a Rod With Vortex Shedding in Low-Speed Flow*. AFIT/GAE/ENY/00M-07. Faculty Advisor: Dr. Paul I. King, DSN: 785-3636, ext 4628. Sponsor: AFRL/AFOSR/NA.

Lacey, Timothy H. *A Formal Methodology and Technique for Verifying Communication Protocols in a Multi-Agent Environment*. AFIT/GCS/ENG/00M-12. Faculty Advisor: Maj Scott A. DeLoach, DSN: 785-3636, ext 4622. Sponsor: AFRL/AFOSR/NM.

Marsh, David W. *Formal Object State Model Transformations for Automated Agent System Synthesis*. AFIT/GCE/ENG/00M-03. Faculty Advisor: Dr. Thomas C. Hartrum, DSN: 785-3636, ext 4581. Sponsor: AFRL/AFOSR/NM.

Miller, Gerald B. *Mechanics of a Functionally-Graded Titanium Matrix Composite*. AFIT/GMS/ENY/00M-01. Faculty Advisor: Dr. Shanker Mall, DSN: 785-3636, ext 4587. Sponsor: AFRL/AFOSR/NA.

Raphael, Marc J. *Active Multispectral Bidirectional Reflectance Distribution Function Measurement System*. AFIT/GCS/ENG/00M-21. Faculty Advisor: Major Scott A. DeLoach, DSN: 785-3636, ext 4622. Sponsor: AFRL/AFOSR/NM.

Robinson, David J. *A Component Based Approach to Agent Specification*. AFIT/GCS/ENG/00M-22. Faculty Advisor: Major Scott A. DeLoach, DSN: 785-3636, ext 4622. Sponsor: AFRL/AFOSR/NM.

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Abell, Sean P. *Implementation of Speech Recognition Software for Text Processing: An Exploratory Analysis*. AFIT/GIR/LAS/99D-1. Faculty Advisor: Maj Michael G. Morris, DSN: 785-3636, ext 4578. Sponsor: AFRL.

Akers, Geoffrey A. *Low Band Direction Finding Using an Ensemble of Structurally Integrated Antennas*. AFIT/GE/ENG/00M-01. Faculty Advisor: Dr. Andrew J. Terzuoli, Jr., DSN: 785-3636, ext 4717. Sponsor: AFRL/SNRP.

Anderson, Gregg T., *A Numerical Simulation of a Carbon Black Suspension Cell via a Time-Reversed, Double Layer Compute Algorithm*. AFIT/GAM/ENC/99D-01. Faculty Advisor: Prof William P. Baker, DSN: 785-3636, ext 4517. Sponsor: AFRL/MLPJ.

Ashby, Michael R. *Tool-Based Integration and Code Generation of Object Models*. AFIT/GE/ENG/00M-02. Faculty Advisor: Dr. T. C. Hartrum, DSN: 785-3636, ext 4581. Sponsor: AFRL/SNZW.

Blake, Travis F. *Investigation Of Ge₂Te₂Sb₅ Chalcogenide Thin Film For Use As An Analog Memory*. AFIT/GE/ENG/00M-04. Faculty Advisor: Maj Charles P. Brothers, Jr., DSN: 785-3636, ext 4618. Sponsor: AFRL/VSSE.

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- Calidonna, M.J. *Extensible Markup Language as a Weather Tool.* AFIT/GM/ENP/00M-02. Faculty Advisor: Lt Col Cecilia Miner. Sponsor: AFRL/IFEB.
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- Corbell, Phillip M. *Design and Validation of an Accurate GPS Signal and Receiver Truth Model for Comparing Advanced Receiver Processing Techniques.* AFIT/GE/ENG/00M-07. Faculty Advisor: Lt Col Mikel Miller, DSN: 785-6565, ext 4278. Sponsor: AFRL/SNAR.
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Parsons, T. L. *Determining the Horizontal Distance Distribution of Cloud-to-Ground Lightning*. AFIT/GM/ENP/00M-09. Faculty Advisor: Maj Gary Huffines, DSN: 785-3636, ext 4511. Sponsor: AFRL/XP.

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- Roberts, Marcus L. *Synchronization of a Transform Domain Communication System*. AFIT/GE/ENG/00M-15. Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703. Sponsor: AFRL/SNRW.
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SPACE AND MISSILE SYSTEMS CENTER

Scott, M. D. *Validation of the Ionospheric Forecast Model (IFM) Version 3*. AFIT/GAP/ENP/00M-04. Faculty Advisor: Dr. David Weeks, DSN: 785-3636, ext 4561. Sponsor: SMC Det 11.

AIR FORCE FLIGHT TEST CENTER

Thurling, Andrew J. *Improving UAV Handling Qualities Using Time Delay Compensation*. AFIT/GAE/ENY/00M-01. Faculty Advisor: Prof Bradley Liebst, DSN: 785-3069. Sponsor: USAF Test Pilot School.

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Boll, Elizabeth A. *An Analysis in Cloud-To-Ground Lightning Over Land Versus Water*. AFIT/GM/ENP/00M-01. Faculty Advisor: Maj Gary Huffines, DSN: 785-3636, ext 4511. Sponsor: 75th OSS/OSW.

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Bracy, Brian L. *Evaluation of a Method for Kinematic GPS Carrier-Phase Ambiguity Resolution Using a Network of Reference Receivers*. AFIT/GE/ENG/00M-5. Faculty Advisor: Maj John F. Raquet, DSN: 785-3636, ext 4580. Sponsor: 746th Test Squadron.

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2.3.5 AIR FORCE SPACE COMMAND

SPACE WARFARE CENTER

Ferguson, Marcus G. *Global Positioning System (GPS) Error Source Prediction*. AFIT/GOR/ENS/00M-12. Faculty Advisor: Maj Jeffrey W. Lanning, DSN: 785-3636, ext 4324. Sponsor: HQ SWC/AE.

3.3.6 AIR MOBILITY COMMAND

Browne, Kenneth S. *Using RSM, DOE, and Linear Regression to Develop a Metamodel to Predict Cargo Delivery of a Time Phase Force Deployment Document*. AFIT/GOA/ENS/00M-01. Faculty Advisor: Maj Paul Murdock. Sponsor: HQ AMC/XPY.

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AIR MOBILITY WARFARE CENTER

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3.3.7 AIR NATIONAL GUARD

Kern, Sean G. *A Human-Centered Approach for Designing Decision Support Systems*. AFIT/GCS/ENG/00M-10. Faculty Advisor: Dr. Henry B. Potoczny, DSN: 785-6565, ext 4282. Sponsor: 2SWS/DOUE.

3.3.8 USAF FIELD OPERATING AGENCIES

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Davis, Cynthia M. *Linking Engineer Career Orientation and Human Resource Management Practices: Does Fit Affect Retention?*. AFIT/GEE/ENV/00M-02. Faculty Advisor: Maj Michael T. Rehg, DSN: 785-3636, ext 4711. Sponsor: HQ AFCEA/CEO.

AIR FORCE STUDIES & ANALYSES AGENCY

Pugh, David M. *A Validation Assessment of the STORM Air-to-Air Prototype Algorithm*. AFIT/GOA/ENS/00M-06. Faculty Advisor: Lt Col Gregory A. McIntyre. Sponsor: Air Force Studies & Analyses Agency.

AIR FORCE TECHNICAL APPLICATIONS CENTER

Coleman, L. K. *Use of Climatology to Predict Maximum Wind Speeds at the Kennedy Space Center and Cape Canaveral Air Station*. AFIT/GM/ENP/00M-04. Faculty Advisor: Lt Col Michael Walters, DSN: 785-3636, ext 4681. Sponsor: AFTAC.

Shoemaker, L. C. *Mixed Layer Height Estimates – A Statistical Analysis of Algorithm Performance*. AFIT/GM/ENP/00M-12. Faculty Advisor: Lt Col Michael Walters, DSN: 785-3636, ext 4681. Sponsor: AFTAC.

AIR FORCE WEATHER AGENCY

Acebal, Ariel O. *Testing of the New USGS K Index Algorithm at Bear Lake Observatory*. AFIT/GAP/ENP/00M-01. Faculty Advisor: Maj Devin Della-Rose, DSN: 785-3636, ext 4514. Sponsor: AFWA.

Douglas, James S. *Distributed Object System Engineering for Terminal Aerodrome Forecast Validation and Metrics Processing*. AFIT/GCS/ENG/00M-007. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: HQ AFWA/XP.

Joga, Meriellen C. *Data Warehouse Techniques to Support Global On-Demand Weather Forecast Metrics*. AFIT/GCS/ENG/00M-09. Faculty Advisor: Dr. Henry B. Potoczny, DSN: 785-6565, ext 4282. Sponsor: HQ AFWA/XP.

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Stenger, R. A. *Sensitivity Studies on a Limited Area Mesoscale Model: An Examination of Lateral Boundary Placement, Grid Resolution and Nesting Type*. AFIT/GM/ENP/00M-13. Faculty Advisor: Lt Col Michael Walters, DSN: 785-3636, ext 4681. Sponsor: HQ AFWA.

45TH WEATHER SQUADRON

Cloys, K. P. *A Neural Network Solution to Predicting Wind Speed at Cape Canaveral's Atlas Launch Pad*. AFIT/GM/EMP/00M-03. Faculty Advisor: Lt Col Michael Walters, DSN: 785-3636, ext 4681. Sponsor: 45 WS/SYR.

Darwin, M. W. *A 3D Display System for Lightning Detection and Ranging (LDAR) Data*. AFIT/GM/ENP/00M-05. Faculty Advisor: Lt Col Cecilia Miner. Sponsor: PAFB/45 WS/SYR.

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Holmes, M. W. *Techniques for Forecasting the Cessation of Lightning at Cape Canaveral Air Station and the Kennedy Space Center*. AFIT/GM/ENP/00M-08. Faculty Advisor: Maj Gary Huffines, DSN: 785-3636, ext 4511. Sponsor: 45 Weather Squadron.

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3.3.9 USAF DIRECT REPORTING UNITS

AIR FORCE COMMUNICATION AGENCY

Banker, David M. *Modeling and Simulation of Communication Systems in OPNET*. AFIT/GE/ENG/00M-03. Faculty Advisor: Dr. Michael Temple, DSN: 785-3636, ext 4703. Sponsor: HQ AFCA/ITAT.

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3.3.10 ARMY

US ARMY RECRUITING COMMAND

Longhorn, David C. *Using Simulation To Model An Army Recruiting Station With Seasonality Effects.*
AFIT/GOR/ENS/00M-18. Faculty Advisor: Lt Col J. O. Miller, DSN: 785-255-6565, ext 4326. Sponsor: HQ USAREC.

US ARMY SAFETY CENTER

Gallan, Roger D. *Analysis of UH-60 Blackhawk Safety Controls Using Value Focused Thinking and Monte Carlo Simulation.* AFIT/GOA/ENS/OOM-3. Faculty Advisor: LTC Jack M. Kloeber, Jr. Sponsor: US Army Safety Center.

3.3.11 DEPARTMENT OF DEFENSE

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Buzo, Christopher D. *A Decision Support Tool to Aid Campaign Planners in Selecting Combat Aircraft for Theater Crisis.* AFIT/GEE/ENS/00M-02. Faculty Advisor: Lt Col Alan Johnson, DSN: 785-6565, ext 4284. Sponsor: DARPA/ISO.

*Hamill, Jonathan T. *Modelling Information Assurance: A Value Focused Thinking Approach.*
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Pearson, Joseph C. *An Improved Algorithm for Translating Relational Schemas into an Object Model.*
AFIT/GCS/ENG/00J-04. Faculty Advisor: Dr. Thomas C. Hartrum, DSN: 785-3636, ext 4581. Sponsor: DARPA/ISO.

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Oxborrow, Glade G. *Defining Virtual Interactions: A Taxonomy for Researchers and Practitioners.*
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DEFENSE THREAT REDUCTION AGENCY

Frederick Jr. Timothy A. *Performance Evaluation of the Nuclear Facility (NFAC) Source Model for the Hazard Prediction and Assessment Capability (HPAC) Code.* AFIT/GNE/ENP/00M-01. Faculty Advisor: Maj Vincent Jodoin, DSN: 785-3636, ext 4506. Sponsor: DTRA/CP.

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Horony, Mark D. *Information Systems Incidents: The Development of a Damage Assessment Model.*
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*Cullenbine, Christopher A. *A Tabu Search Approach to the Weapons Assignment Model*. AFIT/GOR/ENS/00M-08. Faculty Advisor: Lt. Col Mark A. Gallagher, DSN: 785-6565, ext 4335. Sponsor: AFRL/AFOSR/NM and USSTRATCOM/J532.

Wozniak, Jon A. *Potential Fallout Effects from START Level Arsenals*. AFIT/GNE/ENP/00M-03. Faculty Advisor: Maj Vincent Jodoin, DSN: 785-3636, ext 4506. Sponsor: USSTRATCOM.

3.3.12 NATIONAL SECURITY AGENCY

Cochran, Jordon T. *Steganographic Computer Warfare*. AFIT/GCS/ENG/00M-03. Faculty Advisor: Dr. Henry B. Potoczny, DSN: 785-6565, ext 4282. Sponsor: NAIC/TAIF.

Delvecchio, Jeffrey R. *An Incentive Model for International Telecommunications*. AFIT/GOA/ENS/00M-02. Faculty Advisor: Dr. Yupo Chan. Sponsor: National Security Agency.

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Moesner, John F. *A Method of Focusing the Attention of the Decision-Maker on Uncertain Information*. AFIT/GCS/ENG/00M-17. Faculty Advisor: Dr. Gregg Gunsch, DSN: 785-6565, ext 4182. Sponsor: NAIC/TAIT.

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Sperl, Daniel E. *Post-Processing Resolution Enhancement of Open Skies Photographic Imagery*. AFIT/GEO/ENG/00M-03. Faculty Advisor: Dr. Steven C. Gustafson, DSN: 785-3636, ext 4598. Sponsor: NAIC/GTN.

Watkins, Evan T. *Improving the Analyst and Decision-Maker's Perspective Through Uncertainty Visualization*. AFIT/GCS/ENG/00M-24. Faculty Advisor: Dr. Gregg Gunsch, DSN: 785-6565, ext 4182. Sponsor: NAIC/TAIT.

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3.3.13 DAYTON AREA GRADUATE STUDIES INSTITUTE

Ballew, Brian P. *The Distributor's Three-Dimensional Pallet-Packing Problem: A Mathematical Formulation and Heuristic Solution Approach*. AFIT/GOR/ENS/00M-02. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: DAGSI.

Bennett, Barry D. *Robust Multi-Scenario Optimization of an Air Expeditionary Force Force Structure Applying Genetic Algorithms to the Combat Forces Assessment Model*. AFIT/GOR/ENS/00M-04. Faculty Advisor: Lt Col Raymond R. Hill, DSN: 785-6565, ext 4327. Sponsor: DAGSI.

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Rebulanan, Rene C. *Simulation of the Joint Strike Fighter's (JSF) Autonomic Logistics System (ALS) Using Java Programming Language*. AFIT/GOR/ENS/00M-19. Faculty Advisor: Lt Col J. O. Miller, DSN: 785-255-6565, ext 4326. Sponsor: DAGSI.

3.3.14 EGYPTIAN AIR FORCE

Ari, Mehmet M. *Determining The Aircraft Requirement For Turkish Air Mobility System*. AFIT/GOR/ENS/00M-01. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: Egitim Daire Baskanligi.

Basdemir, Melih M. *Locating Search and Rescue Stations in the Aegean and Western Mediterranean Regions of Turkey*. AFIT/GOR/ENS/00M-03. Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337. Sponsor: Hrk. Bsk.ligi.Arama Kurtarma Sube Mudurlugu.

3.4 FUNDED RESEARCH PROJECTS

(*Multiple faculty participated on this project)

AGNES, MAJ GREGORY S., (ENY)

*“Electromagnetic Scattering Comparisons of Traditional and Adaptive Unmanned Aerial Vehicle Wings,”
Sponsor: DARPA, Funding: \$2,000

“Experimental Investigation of Active Inflatable Struts,” Sponsor: SAF/FMBMB-AFOY, Funding: \$12,500

“Smart Structures for Vibration Suppression of Optical Surfaces,” Sponsor: AFRL/AFOSR/NA, Funding: \$23,270.

ANDREW, COL JOHN M., (ENS)

*“Air Force Suite of Models (AFSOM) Support,” Sponsor: AF/XOCP, Funding: \$25,000.

BAKER, WILLIAM P., (ENC)

*“Photothermal Sensor for Multispectral IR Detection,” Sponsor: SAF/FMBMB-AFOY, Funding: \$50,000.

BAUER, KENNETH W., (ENS)

“The Mathematical Modeling of Mental Workload Using Artificial Neural Networks,” Sponsor: AFRL/AFOSR/NI, Funding: \$23,599.

*“Memorandum of Agreement Between The Director of Program Analysis and Evaluation for Headquarters, United States Army Recruiting Command and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Enhanced Recruiters Workflow Study,” Sponsor: US ARMY, Funding: \$30,000.

BIROS, MAJ DAVID P., (ENV)

*“Synthesizing Trust Assessments of Artifact and Human Perceptions of Strategically Manipulated Information,”
Sponsor: AFRL/AFOSR/PIF, Funding: \$70,132.

BLECKMAN, CHARLES A., (ENV)

“Environmental Impacts of Aircraft Deicing Fluids,” Sponsor: ASC/ENVV, Funding: \$8,000.

BONS, MAJ JEFFREY P., (ENY)

“Investigation of Turbine Rotor Internal Cooling and Turbine Stator External Aerodynamics,” Sponsor:
AFRL/AFOSR/NA, Funding: \$1,552.

“Low Pressure Turbine Separation Control Using Vortex Gen Jets,” Sponsor: AFRL/AFOSR/NI, Funding:
\$14,525.

“Real Surface Effects on Turbine Heat Transfer and Aerodynamic Performance,” Sponsor: Mississippi State University, Funding: \$48,222.

“Wind Tunnel Testing,” Sponsor: AFRL, Funding: \$5,000.

BROTHERS, MAJ CHARLES P., (ENG)

“Advanced Microelectronics Design and Fabrication,” Sponsor: AFRL, Funding: \$20,000.

*“Global Information Compression Methodology & Implementation for Enhanced C4ISR System Integration,” Sponsor: DAGSI, Funding: \$40,886.

“VLSI Realization of an Optimized Auditory Model,” Sponsor: AFRL/HECA, Funding: \$10,000.

BURGGRAF, LARRY W., (ENP)

*“Multiplexed Compton Scatter Tomography for Non-Destructive Evaluation of Corrosion in Aging Aircraft,” Sponsor: AFRL/AFOSR/NA, Funding: \$23,399.

“Photothermal Interferometer Sensor For Trace Chemical Detection In Water And Air,” Sponsor: AFRL/HEST, Funding: \$100,000.

*“Photothermal Sensor for Multispectral IR Detection,” Sponsor: SAF/FMBMB-AFOY, Funding: \$50,000.

“Spectroscopic Investigation of the Oxidation and the Hydrolysis of Uranium Dioxide Particles and Uranium Particles,” Sponsor: AFTAC/TMNE, Funding: \$50,000.

*“Theoretical Calculations of Chemistry and Photoluminescence Spectroscopy for Adsorbates on SiC Clusters and Surfaces,” Sponsor: AFRL/AFOSR/NL, Funding: \$125,449.

CHAMBAL, CAPT STEPHEN P., (ENS)

*“Memorandum of Agreement Between the C-17 System Program Office and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Strategic Brigade Airdrop Simulation Completion Study,” Sponsor: ASC/YC (AV/FS), Funding: \$15,000.

CHILTON, LT COL LAWRENCE K., (ENC)

“Finite Element Methods for Finite Elasticity and Elasto-Plasticity,” Sponsor: AFRL/AFOSR/PIF, Funding: \$8,134.

CHRISSIS, JAMES W., (ENS)

*“Air Force Suite of Models (AFSOM) Support,” Sponsor: AF/XOCP, Funding: \$25,000.

COLLINS, MAJ PETER J., (ENG)

*“Electromagnetic Scattering Comparisons of Traditional and Adaptive Unmanned Aerial Vehicle Wings,” Sponsor: DARPA, Funding: \$2,000.

DECKRO, RICHARD F., (ENS)

“Information Assurance Modeling,” Sponsor: DARPA, Funding: \$100,000.

*“Joint Warfare Analysis Center Partnership,” Sponsor: JWAC, Funding: \$15,000.

“Memorandum of Agreement - Center for Operations Research in National Security Agency,” Sponsor: NSA, Funding: \$20,000.

“Modeling Surveillance,” Sponsor: SAF/FMBMB-AFOY, Funding: \$50,000.

“Rapid Approaches to Joint Campaign Planning,” Sponsor: AFRL/AFOSR/NL, Funding: \$24,776.

DELOACH, MAJ SCOTT A., (ENG)

“Agent Development Environments for Large-Scale, Multi-Agent, Distributed Mission Planning and Execution in Complex Dynamic Environment,” Sponsor: AFRL/AFOSR/NM, Funding: \$27,496.

*“Collaborative Information Systems and Adaptive Work Processes,” Sponsor: DAGSI, Funding: \$41,687.

*“Formal Specification and Design of Secure Agents,” Sponsor: AFRL/AFOSR/NI, Funding: \$12,930.

FRANKE, MILTON E., (ENY)

*“Application of a Triggered Isomer Heat Exchanger for Turbojet Engines,” Sponsor: AFRL/AFOSR/NE, Funding: \$11,600.

GALLAGHER, LT COL MARK A., (ENS)

*“Air Force Suite of Models (AFSOM) Support,” Sponsor: AF/XOCP, Funding: \$25,000.

*“Combinatory Optimization for Strategic Nuclear War Planning,” Sponsor: AFRL/AFOSR/NM, Funding: \$5,723.

“Cost Analysis Research for the Office of the Secretary of Defense, Program Analysis & Evaluation,” Sponsor: DoD Wash Hdq, Funding: \$20,000.

“Tabu Search for the Weapon Assignment Model,” Sponsor: USSTRATCOM, Funding: \$3,000.

GOLTZ, MARK N., (ENV)

*“Abiotic and Biochemical Contaminant Fate and Transport,” Sponsor: DAGSI, Funding: \$30,365.

“Bioenhanced In-Well Vapor Stripping To Treat Trichloroethylene (TCE),” Sponsor: AFRL/MLQP, Funding: \$22,528.

“In-Situ Catalytic Groundwater Treatment Using Pd-Catalysts and Horizontal Treatment Wells,” Sponsor: AFRL/MLQ, Funding: \$55,000.

GUNSCH, GREGG H., (ENG)

“Computer Network Attacks: Evidence Retention and Selective Forgetting,” Sponsor: AFRL/IFGB, Funding: \$25,000.

*“Synthesizing Trust Assessments of Artifact and Human Perceptions of Strategically Manipulated Information,” Sponsor: AFRL/AFOSR/PIF, Funding: \$70,132.

GUSTAFSON, STEVEN C., (ENG)

“Novelty Recognition in Material Damage Images,” Sponsor: AFRL/AFOSR/NI, Funding: \$19,754.

“Optical Characterization of Material Surface Damage,” Sponsor: AFRL/AFOSR/NI, Funding: \$188.

HARITOS, COL GEORGE K., (ENY)

“Matrix-Enabled Damage Tolerance in Oxide CFCCs,” Sponsor: AFRL/AFOSR/NA, Funding: \$83,184.

HARTRUM, THOMAS C., (ENG)

*“Collaborative Information Systems and Adaptive Work Processes,” Sponsor: DAGSI, Funding: \$41,687.

*“Formal Specification and Design of Secure Agents,” Sponsor: AFRL/AFOSR/NI, Funding: \$12,930.

HILL, LT COL RAYMOND R., (ENS)

*“Air Force Suite of Models (AFSOM) Support,” Sponsor: AF/XOCP, Funding: \$60,000.

*“Air Force Unmanned Aerial Vehicle Battlelab Support,” Sponsor: 53WG/VAVBL, Funding: \$15,000.

*“Models, Web-Based Simulations and Integrated Analysis for Improved Logistical Performance,” Sponsor: DAGSI, Funding: \$65,072.

JACOBS, LT COL TIMOTHY M., (ENG)

*“Development Support of Integrated Parallel Java Planning Environment for Chemical Plume Analysis and Disposition,” Sponsor: AFRL/IFFDC, Funding: \$13,000.

JACQUES, LT COL DAVID R., (ENY)

*“Control for Uninhabited Combat Air Vehicles,” Sponsor: AFRL/AFOSR/NM, Funding: \$6,042.

*“Cooperative Behavior and Control for Autonomous Munitions,” Sponsor: AFRL/MNGN, Funding: \$20,000.

*“Satellite Formation Flight Control,” Sponsor: AFRL/AFOSR/NM, Funding: \$28,607.

*“Unmanned Aerospace Vehicles,” Sponsor: AFRL/VACA, Funding: \$30,000.

JODOIN, MAJ VINCENT J., (ENP)

“Improvement of the Nuclear Weapon Source Model,” Sponsor: AFRL/AFOSR/NI, Funding: \$8,810.

JOHNSON, LT COL ALAN W., (ENS)

*“Advanced Logistics Project,” Sponsor: DARPA, Funding: \$20,000.

KING, PAUL I., (ENY)

*“Application of a Triggered Isomer Heat Exchanger for Turbojet Engines,” Sponsor: AFRL/AFOSR/NE, Funding: \$25,455.

“Computational Nonlinear Aeroelasticity for Multidisciplinary Analysis and Design,” Sponsor: DAGSI, Funding: \$20,754.

“High Cycle Fatigue Unsteady Aerodynamic Analysis Improvements and Flow Physics,” Sponsor: DAGSI, Funding: \$26,750.

“Micromachined Opto-Mechanical Pressure Sensor Arrays for Gas Turbine Engine Characterization,” Sponsor: DAGSI, Funding: \$16,708.

“Propagating Potential Disturbances in Turbomachinery,” Sponsor: AFRL/AFOSR/NA, Funding: \$56,234.

KLOEBER, LTC JACK M., (ENS)

*“Joint Warfare Analysis Center Partnership,” Sponsor: JWAC, Funding: \$15,000.

*“Memorandum of Agreement Between The Director of Program Analysis and Evaluation for Headquarters, United States Army Recruiting Command and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Enhanced Recruiters Workflow Study,” Sponsor: US ARMY, Funding: \$30,000.

LAIR, ALAN V., (ENC)

*“Scattering & Propagation of Electromagnetic Waves,” Sponsor: AFRL/AFOSR/NM, Funding: \$96,156.

LAMONT, GARY B., (ENG)

*“Development Support of Integrated Parallel Java Planning Environment for Chemical Plume Analysis and Disposition,” Sponsor: AFRL/IFFDC, Funding: \$13,000.

*“Global Information Compression Methodology & Implementation for Enhanced C4ISR System Integration,” Sponsor: DAGSI, Funding: \$40,886.

“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: \$45,000.

LANNING, MAJ JEFFREY W., (ENS)

*“Air Force Suite of Models (AFSOM) Support,” Sponsor: AF/XOCP, Funding: \$25,000.

*“Memorandum of Agreement Between the C-17 System Program Office and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Strategic Brigade Airdrop Simulation Completion Study,” Sponsor: ASC/YC (AV/FS), Funding: \$15,000.

LAPUMA, MAJ PETER T., (ENV)

“Bioavailability of Chromate Containing Primers Paints,” Sponsor: AFRL/AFOSR/NI, Funding: \$26,960.

“Studies on Bioavailability of Chromate Containing Primer Paints,” Sponsor: AFRL/MLQP, Funding: \$13,662.

LARGENT, MAJ CRAIG C., (ENP)

“Cavity Ring-Down Spectroscopy,” Sponsor: AFRL/AFOSR/NE, Funding: \$12,203.

LITTLE, LT COL JEFFREY K., (ENY)

“Experimental Investigation of High-Speed Boundary Layers with Wall Roughness,” Sponsor: AFRL/AFOSR/NA, Funding: \$1,953.

LOTT, LT COL JAMES A., (ENG)

*“Optical Phased Array Technology Development in Support of Active/Passive Optical Sensor Research,” Sponsor: DAGSI, Funding: \$39,614.

“Vertical Microcavity Lasers,” Sponsor: AFRL/AFOSR/NI, Funding: \$19,745.

MAGEE, MAJ ERIC P., (ENG)

“Adaptive Optics in Strong Turbulence and Airborne Laser Advanced Concept Studies,” Sponsor: AFRL/DEBA, Funding: \$10,000.

“Bi-Directional Reflectance Measurements of Satellite Materials for Space Object Identification,” Sponsor: AFRL/DEOF, Funding: \$15,000.

*“Optical Phased Array Technology Development in Support of Active/Passive Optical Sensor Research,” Sponsor: DAGSI, Funding: \$39,614.

MALL, SHANKAR, (ENY)

“Cooperative Research Project on Fretting Fatigue,” Sponsor: AFRL/MLF, Funding: \$207,988.

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

“Interfacial Fracture Mechanisms in Bimaterial Systems at Elevated Temperatures using Experimental and Computational Methods,” Sponsor: AFRL/AFOSR/NA, Funding: \$116,625.

“Life Prediction Modeling of Fabric-Reinforced Ceramic Matrix Composite,” Sponsor: AFOSR/NL, Funding: \$29,050.

MARCINIAK, LT COL MICHAEL A., (ENP)

“Radiative Recombination Dynamics in InAsSb Quantum well Lasers,” Sponsor: AFRL/DEOF, Funding: \$25,000.

MATHIAS, MAJ KARL S., (ENG)

*“Object-Based Extensible Data Model for Next Generation electronic Warfare Integrated Reprogrammable DB (NGE),” Sponsor: NAIC/TAX, Funding: \$5,000.

MCINTYRE, LT COL GREGORY A., (ENS)

*“Air Force Suite of Models (AFSOM) Support,” Sponsor: AF/XOCP, Funding: \$25,000.

Using Goal Lattices for Sensor Management,” Sponsor: AFRL/AFSOR/NM, Funding: \$15,436.

MILLER, LT COL MIKEL M., (ENG)

“GNC Laboratory Upgrades to Enhance GPS/INS Jamming Capabilities,” Sponsor: 746th TEST SQD, Funding: \$15,000.

*“Field Test of Low-Power Global Positioning System Jammer Location System,” Sponsor: AFRL/AFOSR/NL, Funding: \$15,701.

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

MILLER, LT COL JOHN O., (ENS)

*“Air Force Suite of Models (AFSOM) Support,” Sponsor: AF/XOCP, Funding: \$25,000.

*“Memorandum of Agreement Between the C-17 System Program Office and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Strategic Brigade Airdrop Simulation Completion Study,” Sponsor: ASC/YC (AV/FS), Funding: \$15,000.

*“Memorandum of Agreement Between The Director of Program Analysis and Evaluation for Headquarters, United States Army Recruiting Command and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Enhanced Recruiters Workflow Study,” Sponsor: US ARMY, Funding: \$30,000.

MOORE, JAMES T., (ENS)

*“Combinatory Optimization for Strategic Nuclear War Planning,” Sponsor: AFRL/AFOSR/NM, Funding: \$5,723.

*“Models, Web-Based Simulations and Integrated Analysis for Improved Logistical Performance,” Sponsor: DAGSI, Funding: \$65,072.

MURDOCK, MAJ PAUL W., (ENS)

*“Air Force Suite of Models (AFSOM) Support,” Sponsor: AF/XOCP, Funding: \$25,000.

OXLEY, MARK E., (ENC)

“A Reductionist Approach to Process Discovery,” Sponsor: AFRL/AFOSR/NM, Funding: \$5,879.

*“Global Information Compression Methodology & Implementation for Enhanced C4ISR System Integration,” Sponsor: DAGSI, Funding: \$40,886.

PACHTER, MEIR N., (ENG)

“Algorithm Development for On-Line Control of the Airborne Laser (ABL),” Sponsor: AFRL/DEBA, Funding: \$18,000.

*“Control for Uninhabited Combat Air Vehicles,” Sponsor: AFRL/AFOSR/NM, Funding: \$6,042.

*“Cooperative Behavior and Control for Autonomous Munitions,” Sponsor: AFRL/MN, Funding: \$8,607.

*“Satellite Formation Flight Control,” Sponsor: AFRL/AFOSR/NM, Funding: \$23,629.

“System Identification, Adaptive and Nonlinear Control,” Sponsor: AFRL/AFOSR/NI, Funding: \$5,230.

*“Unmanned Aerospace Vehicles,” Sponsor: AFRL/VACA, Funding: \$15,000.

PALAZOTTO, ANTHONY M., (ENY)

“Investigation of Composite Sandwich Panels,” Sponsor: AFRL/AFOSR/NI, Funding: \$16,132.

“Modeling Inflatable Antenna Structures,” Sponsor: AFRL/VACS, Funding: \$5,342.

“Numerical Investigation of the Gouging Phenomenon Within a Hypersonic Rail-Sled Assembly,” Sponsor: AFRL/AFOSR/NM, Funding: \$100,000.

PERRAM, LT COL GLEN P., (ENP)

“Perturbations and Resonances in the Infrared Spectrum of Nitrosyl Bromide: Interactions between the (0,1,0) and (0,0,2), the (1,1,0) and (1,0,2), and the (2,1,0) and (2,0,2) Levels,” Sponsor: AFRL/AFOSR/NL, Funding: \$20,441.

“Rotational energy transfer in silane for SiN film deposition,” Sponsor: AFRL/AFOSR/NL, Funding: \$29,885.

“Spectral Signatures from Munitions,” Sponsor: SAF/FMBMB-AFOY, Funding: \$22,316.

QUINN, DENNIS W., (ENC)

“Physiological Pharmacokinetic Models of Dermal Absorption,” Sponsor: AFRL/AFOSR/NL, Funding: \$23,453.

RAINES, MAJ RICHARD A., (ENG)

*“Joint Warfare Analysis Center Partnership,” Sponsor: JWAC, Funding: \$15,000.

“PASS Resource Management Strategy,” Sponsor: US Pacific Com, Funding: \$26,000.

*“Technical Support, Air Force Communications Systems Modeling,” Sponsor: AFCA/ITAI, Funding: \$42,000.

RAQUET, MAJ JOHN F., (ENG)

“Determination of the Direction of Incoming Global Positioning System (GPS) Signals Using Multiple GPS Receivers,” Sponsor: AFRL/AFOSR/NM, Funding: \$15,540

“Error Analysis and Simulation for AMSTE Program,” Sponsor: AFRL/IFFDC, Funding: \$30,000.

*“Field Test of Low-Power Global Positioning System Jammer Location System,” Sponsor: AFRL/AFOSR/NL, Funding: \$27,701.

ROH, WON B., (ENP)

“High-Power Efficient, Diode-Pumped Fiber Lasers for Air Force Applications,” Sponsor: AFRL/AFOSR/NE, Funding: \$51,602.

“Nonlinear Optical Phenomena in Optical Fibers and Their Application to High-Power Fiber Lasers,” Sponsor: AFRL/DECO, Funding: \$20,000.

SHELLEY, MICHAEL L., (ENV)

*“Abiotic and Biochemical Contaminant Fate and Transport,” Sponsor: DAGSI, Funding: \$30,365.

SMITH, LT COL E. PRICE, (ENY)

“AFIT Systems Engineering Unmanned Aerial Vehicle,” Sponsor: AETC/ETTAP, Funding: \$12,000.

SPENNY, CURTIS H., (ENY)

“Sustained G Flight Simulator,” Sponsor: Environmental Tectonics Corporation, Funding: \$60,000.

SWARTZ, MAJ STEPHEN M., (ENS)

*“Advanced Logistics Project,” Sponsor: DARPA, Funding: \$35,000.

TALBERT, MAJ MICHAEL L., (ENG)

*“Object-Based Extensible Data Model for Next Generation electronic Warfare Integrated Reprogrammable DB (NGE),” Sponsor: NAIC/TAX, Funding: \$5,000.

TEMPLE, MICHAEL A., (ENG)

“Technical Support,” Sponsor: AFRL/SNR, Funding: \$19,994.

*“Technical Support, Air Force Communications Systems Modeling,” Sponsor: AFCA/ITAI, Funding: \$42,000.

TERZUOLI, ANDREW J., (ENG)

*“Electromagnetic Scattering Comparisons of Traditional and Adaptive Unmanned Aerial Vehicle Wings,” Sponsor: DARPA, Funding: \$2,000.

TRAGESSER, STEVEN G., (ENY)

“Formation Flying with Tethered Spacecraft,” Sponsor: SAF/FMBMB-AFOY, Funding: \$18,500.

WALTERS, LT COL MICHAEL K., (ENP)

*“Air Force Unmanned Aerial Vehicle Battlelab Support,” Sponsor: 53WG/VAVBL, Funding: \$15,000.

WEEKS, DAVID E., (ENP)

“The Development of Time Dependent Wave Packet Methods For Computing Reactive Scattering Matrix Elements,” Sponsor: AFRL/AFOSR/PIF, Funding: \$11,391.

“Nonadiabatic Molecular Reaction Dynamics of B + H₂,” Sponsor: AFRL/AFOSR/NL, Funding: \$63,910.

*“Theoretical Calculations of Chemistry and Photoluminescence Spectroscopy for Adsorbates on SiC Clusters and Surfaces,” Sponsor: AFRL/AFOSR/NL, Funding: \$58,527.

WIESEL, WILLIAM E., (ENY)

“Multivariate Control of Satellite Clusters,” Sponsor: DAGSI, Funding: \$6,078.

WOLF, PAUL J., (ENP)

“Electromagnetic Interference - High Power,” Sponsor: AFRL/DEH, Funding: \$10,000.

“Line Broadening Studies in Halogen Molecules,” Sponsor: AFRL/AFOSR/NL, Funding: \$11,328.

WOOD, AIHUA K., (ENC)

*“Scattering & Propagation of Electromagnetic Waves,” Sponsor: AFRL/AFOSR/NM, Funding: \$28,539.

“Time Domain Integral Equation Methods for Electromagnetic,” Sponsor: AFRL/AFOSR/NM, Funding: \$20,719.

YEO, YUNG KEE, (ENP)

“Defect Studies in Group III-Nitrides For Optoelectronic Device Perspectives,” Sponsor: AFRL/AFOSR/NE, Funding: \$24,617.

“Intrinsic and Extrinsic Energy Level Studies in GaN,” Sponsor: AFRL/AFOSR/NI, Funding: \$32,536.

“Ion Implantation And Metallic Contact Studies For Application To AlGaN Optoelectronic Devices,” Sponsor: AFRL/AFOSR/NE, Funding: \$80,000.

3.5 REFEREED JOURNAL PUBLICATIONS

[*Denotes duplicate entry, multiple faculty authors.]

AGNES, Maj GREGORY S., (ENY)

*Agnes, G. S. and S. Mall. "Structural Integrity Issues during Piezoelectric Vibration Suppression of Composite Structure," *Composites: Part B*, Vol. 30: 727-738 (1999).

BAILEY, Lt Col T. GLENN, (ENS)

Salah, Moataz, Richard A. Raines, Michael A. Temple and T. Glenn Bailey. "A Novel Approach for Deriving Bounds of Punctured Turbo Codes," *IEEE Electronic Letters*, Vol. 35, No. 25: 2191-2192 (9 December 1999).

*Salah, Moataz, Richard A. Raines, Michael A. Temple, and T. Glenn Bailey. "Unequal Error Protection Turbo Codes for Short Frames," *IEEE Communication Letters*: (October 1999).

BAKER, WILLIAM P., (ENC)

*Li, G., L. W. Burggraf, and W. P. Baker. "Photothermal Spectroscopy Using Multilayer Cantilever for Chemical Detection," *Applied Physics Letters*, 76: 1122-1124 (2000).

BALDWIN, Maj RUSTY O., (ENG)

Baldwin, Rusty O., Nathaniel J. Davis IV, John E. Kobza, and Scott F. Midkiff. "Real-Time Queueing Theory: A Tutorial Presentation with an Admission Control Application," *Queueing Systems*: Vol. 35: 1-21 (June 2000).

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

Bauer, K.W., S. G. Alsing and K.A. Greene. "Feature Screening using Signal to-Noise Ratios," *Neurocomputing*, Vol 31: 29-44 (Mar 2000).

Greene, K.A., K.W. Bauer, G.F. Wilson, C.A. Russell, S.K. Rogers, and M. Kabrisky "Selection of Psychophysiological Features for Classifying Air Traffic Controller Workload in Neural Networks," *Smart Engineering System Design*, 2000, Vol 2: 315-330 (2000).

BLECKMANN, CHARLES A., (ENV)

*Meshako, C. E., C. A. Bleckmann, and M. N. Goltz. "Biodegradability and Microbial Toxicity of Aircraft Fuel System Icing Inhibitors," *Environmental Toxicology*, 14: 383-390 (1999).

BURGGRAF, LARRY W., (ENP)

Shoemaker, J., L.W. Burggraf, and M.S. Gordon. "An *ab initio* cluster study of the structure of the Si(001) surface," *Journal of Chemical Physics*: 112, No. 6: 2994-3005 (2000).

*Li, G., L.W. Burggraf, and W. P. Baker. "Photothermal Spectroscopy using Multilayer Cantilever for Chemical Detection," *Applied Physics Letters* 76: 9, 1122 (2000).

*Li, G., L.W. Burggraf, J.R. Shoemaker, D. Eastwood, and A.E. Stiegman. "High-temperature photoluminescence in sol-gel silica containing SiC/C nanostructures," *Applied Physics Letters* 76: 23, 3373 (2000).

CHILTON, Lt Col LAWRENCE K., (ENC)

Chilton, L. K. and M. Suri. "On the Construction of Stable Curvilinear p Version Elements for Mixed Formulations of Elasticity," *Numerische Mathematik* 86: 29-48 (2000).

COLLINS, Maj PETER J., (ENG)

*Eigel, Robert L., Jr., Peter J. Collins, Andrew J. Terzuoli, Jr., Giuseppe Nesti, and Joaquim Fortuny. "Bistatic Scattering Characterization of Complex Objects," *IEEE Transactions on Geoscience & Remote Sensing*, Part I, Vol. 38, No. 5: pp. 2078-2092 (September 2000).

CROWN, Maj JOHN S., (ENC)

Crown, J. S. "Percentage Points for Directional Anderson-Darling Goodness-of-Fit Tests," *Communications in Statistics: Simulation and Computation*, 29: 523-532 (2000).

D'AZZO, JOHN J., (ENG)

*D'Azzo, John and Meir Pachter. "Stability Theory: Frequency and Time Domain Methods, Including Saturation Effects," *Encyclopedia of Electrical Engineering*, Wiley: (invited article) (1999).

DECKRO, RICHARD F., (ENS)

Davis, Christine C., Richard F. Deckro, and Jack A. Jackson. "A Value Focused Thinking Model for a C4 Network," *Journal of Multi-Criteria Decision Analysis*, Vol. 9: pp. 138 – 162 (July, 2000).

*Doyle, Michael P., Richard F. Deckro, Jack A. Jackson, and Jack M. Kloeber, Jr. "A Value-Based Approach to Offensive IO Measures of Merit," *Military Operations Research*, Vol. 5, No. 2: pp. 5 – 18 (2000).

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

Della-Rose, Devin J., Jan Sojka, Lie Zhu, Robert Schunk, Michael David. "Driving the High-Latitude Ionosphere with Variable Time Resolution "K-Like" Geomagnetic Indices," *Journal of Atmospheric and Solar-Terrestrial Physics*, 62: 773-786 (2000).

DELOACH, Maj SCOTT A., (ENG)

*DeLoach, Scott A. and Thomas C. Hartrum, "A Theory-Based Representation for Object-Oriented Domain Models," *IEEE Transactions on Software Engineering*, Vol. 26, No. 6: (June 2000).

FRANKE, MILTON E., (ENY)

Snyder, C. H., M. E. Franke, and M. L. Masquelier. "Wind-Tunnel Tests of an Aircraft Turret Model," *AIAA Journal of Aircraft*, 37: 368-376 (May-June 2000).

GOLTZ, MARK N., (ENV)

*Meshako, C. E., C. A. Bleckmann, and M. N. Goltz. "Biodegradability and Microbial Toxicity of Aircraft Fuel System Icing Inhibitors," *Environmental Toxicology*, 14: 383-390 (1999).

HARTRUM, THOMAS C., (ENG)

*DeLoach, Scott A. and Thomas C. Hartrum. "A Theory-Based Representation for Object-Oriented Domain Models," *IEEE Transactions on Software Engineering*, Vol. 26, No. 6: (June 2000).

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3.6 OTHER PUBLICATIONS

[*Denotes duplicate entry, multiple faculty authors.]

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(NOTE: The Graduate Program in Mobility Management (GMO) is designed specifically for personnel of the Air Mobility Command, and students in the GMO program write graduate research papers supporting topics of interest to AMC. Their papers are not included in the research summaries presented in Sections 1.2 –1.4 of this report.)

Bauer, M. *Yokota C-130's Becoming Airland Only*. AFIT/GMO/ENS/00E-1. Faculty Advisor: Maj Stephen M. Swartz, DSN: 785-6565 EXT 4285.

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GUSTAFSON, STEVEN C., (ENG)

Gustafson, Steven C., "Probability Densities for Sequential Pattern Recognition," unpublished report for Air Force Research Laboratory, Information Directorate, August 2000.

*Gustafson, Steven C., Roger L. Claypoole, and Eric P. Magee, "Novelty Recognition in Material Damage Images," unpublished report for Air Force Research Laboratory, Materials Directorate, September 2000.

*Gustafson, Steven C., Roger L. Claypoole, and Todd B. Hale, "A Competitively Evolved Probability Density for Signal Interpolation," unpublished report for Air Force Research Laboratory, Information Directorate, Sep 00.

Learn, Andrew W. and Steven C. Gustafson, "SAR Target Pose Estimation Using Adaptive Networks," unpublished report for Air Force Research Laboratory, Sensors Directorate, May 2000.

Huether, Brian, Steven C. Gustafson, and Randy Broussard, "Wavelet Pre-Processing for High Range Resolution Radar Classification," unpublished report for Air Force Research Laboratory, Sensors Directorate, June 2000.

HARTRUM, THOMAS C., (ENG)

*Jacobs, Timothy M., Scott DeLoach, Thomas Hartrum, and Michael Cox, "Graphical Interface for Agent-Based Mixed-Initiative Collaboration," (DAGSI Funded). Sponsor: AFRL/HECA

*Talbert, Michael L., Scott A. DeLoach, and Thomas C. Hartrum, "An Agent-Based Methodology for Integrating Heterogeneous Resources," AFRL/SNAS.

HILL, Lt Col RAYMOND R., (ENS)

Provided statistical consultations to Kelley Logistics Support Systems, Fairborn Ohio-based company under contract with AFRL/HESS

Provided consultation support to AFRL/HESS in support of their Theater Distribution Management System initiative.

JACOBS, Lt Col TIMOTHY M., (ENG)

Jacobs, Timothy M., “Visual Tools for Accessing Intelligence Data in Project Broadsword,” Air Force Research Laboratory (AFRL/IFED).

Jacobs, Timothy M., “Airlift Flow Model Visualization,” Air Mobility Command (HQ AMC/XPY).

Jacobs, Timothy M., “Visual Integration of Planning Data and Chemical Plume Analysis,” Air Force Research Laboratory (AFRL/IFTC).

Jacobs, Timothy M., “Visual Collaborative Training,” \$10K funded through Education and Training Technology Applications Program (ETTAP). Sponsor: HQ AETC/XP.

*Jacobs, Timothy M., Scott DeLoach, Thomas Hartrum, and Michael Cox, “Graphical Interface for Agent-Based Mixed-Initiative Collaboration,” (DAGSI Funded). Sponsor: AFRL/HECA

JODOIN, Maj VINCENT J., (ENP)

Advised DTRA/CPWE on capabilities and possible improvements to current and future nuclear weapon fallout models.

KLOEBER, LTC JACK M., JR., (ENS)

Traveled to a DARPA special meeting on Information Assurance , Science and Engineering Tools, for 1 week in July 2000.

*Met request to participate in an Information Assurance Workshop at Naval Security Agency organized by IDA to address issues of operational testing for IA for OSD. (TDY supported by JCCWC)

*Met request to participate in an Information Assurance Workshop at JITC organized by IDA to address issues of operational testing for IA for OSD. (TDY supported by OSD OT&E)

Co-taught a 1 week short course to the Joint Warfare Analysis Center analysts on Multiple Objective Decision Analysis, June 4- June 9 2000.

Decision Analysis for Ft. Jackson’s Program of Instruction, AORS, October, 1999, LTC W. Klimack and LTC J. Kloeber.

LAMONT, GARY B., (ENG)

Lamont, Gary B. and Robert Linderman, “Parallel/Distributed Real-Time Digital Signal Processing.” Sponsor: AFRL/IF.

Lamont, Gary B. and Robert Ewing, “Methodology and Implementations for C4ISR Systems.” Sponsor: AFRL/SN.

Lamont, Gary B. and Ruth Pachter, “Material Structure Prediction Using Evolutionary Algorithms.” Sponsor: AFRL/ML.

LOTT, Lt Col JAMES A., (ENG)

Lott, James A., "Design, Growth, Fabrication, and Characterization of Microcavity Laser Diodes," AFRL/SND.

MAGEE, Maj ERIC P., (ENG)

*Gustafson, Steven C., Roger L. Claypoole, and Eric P. Magee, "Novelty Recognition in Material Damage Images," unpublished report for Air Force Research Laboratory, Materials Directorate, September 2000.

MATHIAS, Maj KARL S., (ENG)

*Talbert, Michael L. and Karl S. Mathias, "Object-Based Extensible Data Model for the Next Generation Electronic Warfare Integrated Reprogrammable DB (NGE)," NAIC/TAER.

MAYBECK, PETER S., (ENG)

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

Maybeck, Peter S., "Detection/Compensation of Jamming/Spoofing of GPS-Aided Inertial Navigation Systems," AFRL/SNAR.

MORRIS, Maj MICHAEL G., (ENV)

Morris, M. Served as systems design consultant for human-computer interaction/usability issues for Project Majel, an artificial intelligence Y2K web-enabled search system, sponsor: Air Force Communications Agency (AFCA), Scott AFB IL (1999-2000).

Morris, M. Served as Air Force "subject matter expert" for the development of three information systems courses designed to support the Defense Leadership and Management Program (DLAMP) for senior DoD civilians, sponsor: DoD Civilian Personnel Management Service (Winter 2000).

PACHTER, MEIR, (ENG)

Consultant to AFRL/VACA and member of the AFRL/VACA AFOSR Star Team.

RAINES, Maj RICHARD A., (ENG)

*Raines, Richard A. and Rusty O. Baldwin, "OPNET Modeling of Communication Devices for Incorporation into NETWARS Environment," Air Force Communications Agency, July 2000.

*Temple, Michael and Richard A. Raines, "Communications OPNET Modeling and Simulation Laboratory (COMSL) Development and Support," Information Technology Division, Air Force Communications Agency (AFCA/ITA), October 1999.

*Temple, Michael A., Richard A. Raines, and Rusty O. Baldwin, "Communications OPNET Modeling and Simulation Laboratory (COMSL) Development and Support," Information Technology Division, Air Force Communications Agency (AFCA/ITA), Scott AFB IL, March 2000.

TALBERT, Maj MICHAEL L., (ENG)

Talbert, Michael L., consultant to the C2BL for data interoperability, transmission, and access issues. Support the \$700K acquisition efforts of the C2BL to obtain a proof of concept of a Joint Air Operations Center Information Visualization Environment (JIVE) toolset.

Talbert, Michael L., consultant to the DARPA sponsored Deployment Object Working Group (DOWG) which is to facilitate communication and information sharing among the projects and stakeholders concerned with the evolution of the legacies related to the Time Phased Force and Deployment Data.

Talbert, Michael L., "Database Interoperability Consulting for Joint Air Operations Center Information Viewing Environment (JIVE). Providing service to the visualization efforts for the Command and Control Battlelab's Intelligence-Surveillance, Reconnaissance Battle Management (ISRBM), Dynamic Replanning (DR), and Federated Assessment and Targeting Enhancements (FATE) initiatives.

*Talbert, Michael L. and Karl S. Mathias, "Object-Based Extensible Data Model for the Next Generation Electronic Warfare Integrated Reprogrammable DB (NGE)," NAIC/TAER.

*Talbert, Michael L., Scott A. DeLoach, and Thomas C. Hartrum, "An Agent-Based Methodology for Integrating Heterogeneous Resources," AFRL/SNAS.

TEMPLE, MICHAEL A., (ENG)

Temple, Michael A., Technical Support: "Transform Domain Communication System Development," Air Force Research laboratory (AFRL/SNRW), October 1999.

Temple, Michael A., Technical Support: "Electronic Warfare Advanced Technology Development," Sensor Applications and Demonstrations Division, Sensors Directorate, Air Force Research Laboratory (AFRL/SNZ), October 1999.

*Temple, Michael and Richard A. Raines, "Communications OPNET Modeling and Simulation Laboratory (COMSL) Development and Support," Information Technology Division, Air Force Communications Agency (AFCA/ITA), October 1999.

*Temple, Michael A., Richard A. Raines, and Rusty O. Baldwin, "Communications OPNET Modeling and Simulation Laboratory (COMSL) Development and Support," Information Technology Division, Air Force Communications Agency (AFCA/ITA), Scott AFB IL, March 2000.

*Terzuoli, Andrew J., Jr., Michael Temple, and Peter J. Collins, "Computer Model Simulation & Measurement Studies in Support of Bistatic RCS Characterization," AFRL/SN.

*Terzuoli, Andrew J., Jr., Michael Temple, and Peter J. Collins, "Investigation of Low-Band Direction Finding Using an Ensemble Integrated Antennas," AFRL/SN.

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

*Terzuoli, Andrew J., Jr., Michael Temple, and Peter J. Collins, "Computer Model Simulation & Measurement Studies in Support of Bistatic RCS Characterization," AFRL/SN.

*Terzuoli, Andrew J., Jr., Greg Agnes, and Peter J. Collins, "RCS Comparison of Alternate Wing Control Surfaces," DARPA, ASC/EN, AFRL/SN, RATSCAT.

*Terzuoli, Andrew J., Jr., and Peter J. Collins, "Various Aspects of LO/CLO/CCLO," ASC/EN.

*Terzuoli, Andrew J., Jr., Michael Temple, and Peter J. Collins, "Investigation of Low-Band Direction Finding Using an Ensemble Integrated Antennas," AFRL/SN.

TURCOTTE, JEFFREY S., (ENY)

Turcotte, Jeffrey S., Transient analysis of a solar thermal orbit transfer vehicle for reflector focus performance.
Sponsor: AFRL/PR (Edwards AFB). 1 October 1998 – Present.

WIESEL, WILLIAM E., (ENY)

Wiesel, William E., “Space Maneuver Vehicle Operations Planner,” software system for exploring Space Maneuver Vehicle Operational Concepts.

WOOD, AIHUA W., (ENC)

*Collins, Peter J. and Aihua Wood, “Hybrid Maxwell Solver for Wide-Band Radar Signature Prediction for LO Targets,” AFRL/DAGSI.

3.8 PRESENTATIONS

[*Denotes duplicate entry, multiple faculty authors.]

AROSTEGUI, Maj MARVIN A., (ENS)

Arostegui, Marvin A. "La Gerencia de la Logística," Talks given at The Center for Hemispheric Defense Studies Seminar, Washington DC, 1-2 Feb 00, 3-5 Apr 00, 19-20 Sep 00.

BAILEY, Lt Col T. GLENN, (ENS)

*O' Rourke, K. P., T. G. Bailey, R. Hill., and W. B. Carlton "Dynamic Routing of Unmanned Aerial Vehicles Using Reactive Tabu Search", 68th MORS Symposium, US Air Force Academy, June 2000.

*Salah, Moataz, Richard A. Raines, Michael A. Temple, and T. Glenn Bailey, "Energy Allocation Strategies for Turbo Codes with Short Frames," IEEE International Conference on Information Technology: Coding and Computing, Las Vegas NV, 27-29 March 2000.

*Salah, Moataz, Richard A. Raines, Michael A. Temple, and T. Glenn Bailey, "A General Interleaver for Equal and Unequal Error Protections for Turbo Codes with Short Frames," IEEE International Conference on Information Technology: Coding and Computing, Las Vegas NV, 27-29 March 2000.

BAILEY, WILLIAM F., (ENP)

Bailey, W. F., and Smithtro, C.G., "Solutions to the Spatially Inhomogeneous Boltzmann Equation in Rare Gases and Rare Gas – Molecular Gas Mixtures," 52nd Annual Gaseous Electronics Conference, Norfolk, VA, 5-8 Oct 1999.

BAKER, WILLIAM P., (ENC)

*Li, G., L. W. Burggraf, and W. P. Baker, "Photothermal Spectroscopy Based on a Multilayer Reed Probe for Chemical Detection," SPIE's Aerospace/Defense Sensing, Simulation, and Controls, (Poster Session). Orlando, FL. April 2000.

BLECKMANN, CHARLES A., (ENV)

*Burke, B.W., D.L. Kellner, C.A. Bleckmann, E.C. Heyse, and M.N. Goltz. "Aircraft deicing agent biodegradation in soils: Laboratory studies," Society for Environmental Toxicology and Chemistry 20th Annual Meeting, Philadelphia PA, 14 - 18 November 1999.

BRADY, Maj STEPHAN P., (ENS)

Brady, Stephan P. "Multi-Echelon Reordering With Competing Policies" Presented at the Multi-Echelon Inventory Conference, University of Michigan, Ann Arbor, 25 Jun 2000.

BROTHERS, Maj CHARLES P., (ENG)

Barnhart, David, Paul Duggan, Bruce Suter, Charles Brothers, and Kenneth Stevens, "Total Ionizing Dose Characterization of a Commercially Fabricated Asynchronous FFT for Space Applications," Hardened Electronics and Radiation Technology Conference, Anaheim CA, 15 March 2000.

BURGGRAF, LARRY W., (ENP)

*Li, G., L. W. Burggraf, and W. P. Baker, "Photothermal Spectroscopy Based on a Multilayer Reed Probe for Chemical Detection," SPIE's Aerospace/Defense Sensing, Simulation, and Controls, (Poster Session). Orlando, FL, April 2000.

CHAMBAL, Capt STEPHEN P., (ENS)

J. Bert Keats and Stephen Chambal. "TTF vs. TBF in Reliability Analysis; Removing Doubt and Confusion," Fall Technical Conference, Houston, Oct 99.

CHILTON, Lt Col LAWRENCE K., (ENC)

Chilton, L. K., "Spatial (Eulerian) Formulation for Nearly Incompressible Elasticity," AFRL/AFOSR Contractors and Grantees Meeting, Stanford University, June 2000.

CHRISSIS, JAMES W., (ENS)

*Calhoun, Kevin M., Richard F. Deckro, James T. Moore, James W. Chrissis, and John Van Hove, "Project Planning and Re-Planning", INFORMS Salt Lake City, May 2000.

CLAYPOOLE, Maj ROGER L., (ENG)

Claypoole, Roger, "Multiresolution Wedgelet Transforms for Image Processing," SPIE 45th International Symposium on Optical Science and Technology, San Diego CA, August 2000.

COLLINS, Maj PETER J., (ENG)

*Craig, Matthew D., Peter J. Collins, and Andrew J. Terzuoli, Jr., "An Empirical Prediction Model of the Performance Impacts of Material Tolerances in Frequency Selective Surfaces Using the Monte Carlo Method," PIERS: Progress in Electromagnetics Research Symposium, Cambridge MA, 5-14 July 2000.

*Gabig, Sarah J., Peter J. Collins, Andrew J. Terzuoli, Jr., Giuseppe Nesti, and Joaquim Fortuny, "A Lookat Monostatic to Bistatic Equivalence Theorem," PIERS: Progress in Electromagnetics Research Symposium, Cambridge MA, 5-14 July 2000.

*Akers, Geoffrey A., Peter J. Collins, Andrew J. Terzuoli, Jr., Krisha Pasala, and Robert B. Penno, "Low-Band Direction Finding Using an Ensemble of Antennas," PIERS: Progress in Electromagnetics Research Symposium, Cambridge MA, 5-14 July 2000.

*Gabig, Sarah J., Kelce S. Wilson, Peter J. Collins, Andrew J. Terzuoli, Jr., Giuseppe Nesti, and Joaquim Fortuny, "Validation of Near-Field Monostatic to Bistatic Equivalence Theorem," IEEE 2000 International Geoscience and Remote Sensing Symposium, Honolulu HI, 24-28 July 2000.

*Rupert, Scott P., Greg S. Agnes, Peter J. Collins, Andrew J. Terzuoli, Jr., and Kelce S. Wilson, "Comparisons of Control Surface Electromagnetic Scattering mechanisms," 46th Annual Tri-Service Radar Symposium, Air Force Academy, Colorado Springs CO, 27-29 June 2000.

DECKRO, RICHARD F., (ENS)

- *Hamill, Capt J. Todd, Dr. Richard F. Deckro, LTC Jack M. Kloeber, Jr., and Col. T. S. Kelso, "The Value of Information in a Defense System", AFORS 2000, Air Force Operations Research Symposium, Colorado Springs, September 2000.
- *Winthrop, Major Michael, LTC Jack M. Kloeber, Jr., and Richard F. Deckro, "VA/AFIT Technology Evaluation Study", AFORS 2000, Air Force Operations Research Symposium, Colorado Springs, September 2000.
- Parnell, Gregory S., Richard F. Deckro, and Col Michael McGinnis, "Information Operations – Opportunities for Operations Research", 5th Canada/US Army Operational Research Symposium, Quebec City, Quebec, August 2000.
- *Renfro, Robert, Richard F. Deckro, and Jack M. Kloeber, Jr., "Modeling Social Networks", 68th MORS Symposium, June 2000.
- *Hamill, J. Todd, Richard F. Deckro, and Jack M. Kloeber, Jr., "IA Strategy Evaluation Using Value Focused Thinking", 68th MORS Symposium, June 2000.
- *Gallan, Roger, Jack M. Kloeber, Jr. and Richard F. Deckro, "Building and Evaluating a Multiple Objective Portfolio A Case Study", 68th MORS Symposium, June 2000.
- *Emslie, Paul, Jack M. Kloeber, Jr. and Richard F. Deckro, "Selecting the Best Target Set for LOC Network Attack", 68th MORS Symposium, June 2000.
- *Calhoun, Kevin M., Richard F. Deckro, James T. Moore, James W. Chrissis, and John Van Hove, "Project Planning and Re-Planning", INFORMS Salt Lake City, May, 2000.
- *Deckro, Richard F., and Jack M. Kloeber, Jr., and J. Todd Hamill, "IA Modeling", DARPA/IASET Kick-Off Meeting, April, 2000.
- *Hamill, J. Todd, Richard F. Deckro, and Jack M. Kloeber, Jr., "Considerations in Modeling Information Assurance: Some Preliminary Results and Questions", INFORMS Philadelphia, November 1999.

DELOACH, Maj SCOTT A., (ENG)

- DeLoach, Scott A. and Mark Wood, "Developing Multiagent Systems with agentTool," Seventh International Workshop on Agent Theories, Architectures, and Languages. (ATAL-2000), Boston MA, 7-9 July 2000.
- Lacey, Timothy H. and Scott A. DeLoach, "Verification of Agent Behavioral Models," 2000 International Conference on Artificial Intelligence (IC-AI'2000), Las Vegas NV, 2000.
- Wood, Mark and Scott A. DeLoach, "An Overview of the Multiagent Systems Engineering Methodology," First International Workshop on Agent-Oriented Software Engineering (AOSE-2000), Limerick, Ireland, 10 Jun 00.
- Lacey, Timothy H. and Scott A. DeLoach, "Automatic Verification of Multiagent conversations," Proceedings of the Eleventh Annual Midwest Artificial Intelligence and Cognitive Science Conference, Fayetteville AK, 2000.
- Smith, Jeffrey, Mieczyslaw Kokar, Kenneth Baclawski, and Scott A. DeLoach, "Category Theoretic Approaches of Representing Precise UML Semantics," ECOOP'2000 Workshop on Defining Precise Semantics for UML, Sophia Antipolis, France, 13 June 2000.
- *McDonald, J. Todd, Michael L. Talbert, and Scott A. DeLoach, "Heterogeneous Database Integration Using Agent Oriented Information Systems," 2000 International Conference on Artificial Intelligence (IC-AI'2000), Las Vegas NV, 2000.

GALLAGHER, Lt Col MARK A., (ENS)

*Cullenbine, Christopher A, Mark A. Gallagher, and James T. Moore, "A Tabu Search Approach to the Weapons Assignment Model," Air Force Operations Research Symposium (AFORS), United States Air Force Academy, Colorado, September 14-15, 2000.

*Cullenbine, Christopher A, Mark A. Gallagher, and James T. Moore, "A Tabu Search Approach to the Weapons Assignment Model," Military Operations Research Society (MORS) Symposium, United States Air Force Academy, Colorado, June 20-22, 2000.

*Anthony W. Snodgrass, Mark A. Gallagher, Gregory A. McIntyre, and Jack M. Kloeber "Leontief Modeling for Military Strategic Effects," Military Operations Research Society (MORS) Symposium, United States Air Force Academy, Colorado, June 20-22, 2000.

Charles S. Tapp and Mark A. Gallagher, "BRAC to the Future," Military Operations Research Society (MORS) Symposium, United States Air Force Academy, Colorado, June 20-22, 2000.

GOLTZ, MARK N., (ENV)

Niekamp, S.W., K.G. Boggs, M.N. Goltz, and A. Agrawal. "Bench-scale investigation of catalytic dehalogenation of chlorinated ethenes with palladium metal: Reaction by-products," 220th National Meeting of the American Chemical Society, Washington DC, 20-24 August 2000.

Goltz, M.N. and K.J. Williamson. "Transfer and commercialization of contaminated groundwater remediation technologies," Tech Transfer 2000 Seminar/Workshop, Waikoloa, HI, 16-17 August 2000.

Gandhi, R.K., M.N. Goltz, S.M. Gorelick, G.D. Hopkins, and P.L. McCarty. "Design of a field demonstration of bio-enhanced in-well vapor stripping to treat trichloroethylene contamination," Hazardous Substance Research Centers Research Symposium, Asilomar Conference Center, CA, 9-12 July 2000.

Ferland, D.R., K.G. Boggs, S. Niekamp, J.A. Christ, A. Agrawal, and M.N. Goltz. "Chlorinated hydrocarbon treatment using a horizontal flow treatment well system," The Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey CA, 22-25 May 2000.

Gandhi, R.K., M.N. Goltz, P.L. McCarty, and S.M. Gorelick. "Design of a field demonstration of bio-enhanced in-well vapor stripping to treat trichloroethylene contamination," Partners in Environmental Technology Technical Symposium and Workshop, Arlington VA, 30 November - 2 December 1999.

*Burke, B.W., D.L. Kellner, C.A. Bleckmann, E.C. Heyse, and M.N. Goltz. "Aircraft deicing agent biodegradation in soils: Laboratory studies," Society for Environmental Toxicology and Chemistry 20th Annual Meeting, Philadelphia PA, 14 - 18 November 1999.

GUSTAFSON, STEVEN C., (ENG)

Gustafson, Steven C., "Blameless Neural Networks," presented to the IEEE Computer Society, Dayton OH, August 2000.

HENGESOLD, ROBERT L., (ENP)

- *McFall, J.L., R. L. Hengehold, Y. K. Yeo, and J. E. Van Nostrand. "Optical Investigation of MBE Grown Si-Doped $\text{Al}_x\text{Ga}_{1-x}\text{N}$ as a Function of Nominal Al Mole Fraction up to 0.5%," presented at the 11th International Conference on Molecular Beam Epitaxy, held in Beijing, China on September 10-15, 2000.
- *Ahoujja, M., Y.K. Yeo, R.L. Hengehold, and G.S. Pomerence. "Electrical properties of boron doped p-SiGeC grown on n-Si substrate," presented at the Fall 1999 Meeting of the Ohio Section of the American Physical Society, held in Dayton, OH, 8-9 October 1999.
- *Guido, L.J., P. Mitev, M. Gherasimova, B. Gaffey, M. Ahoujja, and Y.K. Yeo, "Isoelectronic doping of GaN with arsenic," presented at the 6th Wide Bandgap and Nitride Workshop, held in Richmond, VA, 15-17 March 2000
- *Ahoujja, M., Y.K. Yeo, R.L. Hengehold, L. J. Guido, D. K. Johnstone, and Y.H. Kim. "Electrical properties of arsenic doped GaN films grown by MOCVD," presented at the March 2000 Meeting of the American Physical Society, held in Minneapolis, Minnesota, 20-24 March 2000.
- *Kim, Y.H., M. Ahoujja, Y.K. Yeo, R.L. Hengehold, L. J. Guido, and D. K. Johnstone. "Photocapacitance transient study of arsenic doped GaN," presented at the March 2000 Meeting of the American Physical Society, held in Minneapolis, Minnesota, 20-24 March 2000
- *Ahoujja, M., Y. K. Yeo, R. L. Hengehold, L. J. Guido, P. Mitev, D. K. Johnstone, and Y. H. Kim, "Influence of arsenic doping on the electrical properties of GaN epitaxial layers grown by MOCVD," presented at the 11th International Semiconducting and Insulating Materials Conference, held in Canberra, Australia on July 3-7, 2000.
- *Cooley, W.T., M.A. Marciniak, R.L. Hengehold, Y.K. Yeo and G.W. Turner, "Radiative Recombination Dynamics in InAsSb Quantum-Well Lasers." 1999 Fall Meeting, Ohio Section of the American Physical Society/Southern Ohio Section AAPT, Wright-State University, Dayton, OH, 9 October 1999.
- * Weeks, D.E., S. Yang, R.L. Hengehold and M.A. Marciniak, "Mid-Infrared Quantum Well Research at AFIT," ARFL SSDLTR, Albuquerque NM, June 5-8, 2000.
- * Yang, S., D.E. Weeks, R.L. Hengehold, and M.R. Gregg, "Inter-subband Absorption Coefficients of [001] and [110] Si/SiGe Quantum Wells," APS March meeting, Minneapolis MN, March 20-24, 2000.
- * Yang, S., D.E. Weeks, and R.L. Hengehold, "Dispersion Relations and Optical Properties of Quantum Well Heterostructures," Fall OSAPS meeting, Dayton OH, Oct 8-9, 1999.

HILL, Lt Col RAYMOND R., (ENS)

- Hill, Raymond. " Monte Carlo Study of Genetic Algorithm Initial Population Generation Methods" 1999 Winter Simulation Conference, Phoenix AZ, December 1999.
- Gaupp, Martin P. and Raymond Hill. "Using Adaptive Agents in Java to Simulate U.S. Air Force Pilot Retention", 1999 Winter Simulation Conference, Phoenix AZ, December 1999.
- *Hill, Raymond, Reginald Festejo, and J. O. Miller, "Modeling the Modular Aircraft Support System for Improved Air Force Logistics", Industrial Engineering Research Conference 2000, Cleveland OH, 23 May 2000.
- *Hill, Raymond R., Greg McIntyre, Barry Bennett. "A Methodology and Experiment Using Robust, Multi-Scenario Optimization Techniques", 68th MORS Symposium, US Air Force Academy, June 2000.
- *Bullock, Kelly, Greg McIntyre, and Raymond Hill "HITM: An Investigation into the Relationship Between Strategic Effects and OODA Loops", 68th MORS Symposium, US Air Force Academy, June 2000.

*O' Rourke, K. P., T. G. Bailey, R. Hill., and W. B. Carlton "Dynamic Routing of Unmanned Aerial Vehicles Using Reactive Tabu Search", 68th MORS Symposium, US Air Force Academy, June 2000.

*Capehart, Shay, James Moore, and Raymond Hill, "Quick Look Too for Tanker Mission Planning", Military Operations Research Society Symposium, United States Air Force Academy, CO, 20-22 Jun 00.

*Hall, Shane, James Moore, and Raymond Hill, "A Group Theoretic Tabu Search Approach to the Air Mobility Command Routing Problem", Military Operations Research Society Symposium, United States Air Force Academy, CO, 20-22 Jun 00.

*Harder, Robert, Gary Kinney, Raymond Hill, and James Moore, "A Quick-Running Routing Algorithm for UAV Reconnaissance Operations", Military Operations Research Society Symposium, United States Air Force Academy, CO, 20-22 Jun 00.

*Rebulanan, Rene, J.O. Miller, and Raymond Hill, "Modeling the Joint Strike Fighter's Autonomic Logistics System," IERC, Cleveland, Ohio, 23 May 2000.

HOLT, Capt DANIEL T., (ENV)

Holt, Daniel T. "The measurement of readiness for change: A review of instruments and suggestions for future research." Paper presented at the Annual meeting of the Academy of Management, Toronto, Canada. 9 August 2000.

JACOBS, Lt Col TIMOTHY M., (ENG)

Jacobs, Timothy M., "Airborne Without Leaving the Ground: Airdrop Visualizatin in a Virtual Environment," invited presentation at Dayton Chapter meeting of SAFE Association, March 2000.

JODOIN, Maj VINCENT J., (ENP)

Jodoin, V.J. "Improvement of the Nuclear Weapon Source Model for the Hazard Prediction and Assessment Capability Code," Invited, AFRL/AFOSR Contractors/Grantees Meeting, Computational and Applied Mathematics, Stanford University, Stanford, CA, 28-30 Jun 2000.

JOHNSON, Lt Col ALAN W., (ENS)

*Guarnieri, Gorge, Stephen M. Swartz, and Alan W. Johnson, "Maintenance Resources Evaluation Technique," Presentation at the 68th MORS Symposium, United States Air Force Academy, 21 June 2000.

*Johnson, Alan W. and Stephen M. Swartz, "Mission Resources Value Assessment Technique," Presentation at the 68th MORS Symposium, United States Air Force Academy, 21 June 2000.

KELSO, Col T.S. (ENS)

*Hamill, Capt J. Todd, Dr. Richard F. Deckro, LTC Jack M. Kloeber, Jr., and Col. T. S. Kelso, "The Value of Information in a Defense System", AFORS 2000, Air Force Operations Research Symposium, Colorado Springs, September 2000.

KLOEBER, LTC JACK M., JR., (ENS)

*Hamill, Capt J. Todd, Dr. Richard F. Deckro, LTC Jack M. Kloeber, Jr., and Col. T. S. Kelso, "The Value of Information in a Defense System", AFORS 2000, Air Force Operations Research Symposium, Colorado Springs, September 2000.

- *Winthrop, Major Michael, LTC Jack M. Kloeber, Jr., and Richard F. Deckro, "VA/AFIT Technology Evaluation Study", AFORS 2000, Air Force Operations Research Symposium, Colorado Springs, September 2000.
- *Snodgrass, Anthony W., Mark A. Gallagher, Gregory A. McIntyre, and Jack M. Kloeber "Leontief Modeling for Military Strategic Effects," Military Operations Research Society (MORS) Symposium, United States Air Force Academy, Colorado, June 20-22, 2000.
- *Renfro, Robert, Richard F. Deckro, and Jack M. Kloeber, Jr., "Modeling Social Networks", 68th MORS Symposium, June 2000.
- *Hamill, J. Todd, Richard F. Deckro, and Jack M. Kloeber, Jr., "IA Strategy Evaluation Using Value Focused Thinking", 68th MORS Symposium, June 2000.
- *Gallan, Roger, Jack M. Kloeber, Jr. and Richard F. Deckro, "Building and Evaluating a Multiple Objective Portfolio A Case Study", 68th MORS Symposium, June 2000.
- *Emslie, Paul, Jack M. Kloeber, Jr. and Richard F. Deckro, "Selecting the Best Target Set for LOC Network Attack", 68th MORS Symposium, June 2000.
- Kloeber, Jack M. Jr., "The Military OR Curriculum Review", 2nd day of MORS Educational Symposium, 3 hour discussion and presentation, MITRE, Washington DC, April 2000.
- *Deckro, Richard F., and Jack M. Kloeber, Jr., and J. Todd Hamill, "IA Modeling", DARPA/IASET Kick-Off Meeting, April, 2000.
- *Hamill, J. Todd, Richard F. Deckro, and Jack M. Kloeber, Jr., "Considerations in Modeling Information Assurance: Some Preliminary Results and Questions", INFORMS Philadelphia, November 1999.

LAMONT, GARY B., (ENG)

- *Magee, Eric P., David Strong, and Gary B. Lamont, "Implementation and Test of Wave Optics Code Using Parallel FFT Algorithms," 2000 EOS/SPIE Symposium on Remote Sensing 25-29 September 2000.
- Lamont, Gary B. and David VanVeldhuizen, "Multiobjective Optimization with Messy Genetic Algorithms," ACM Symposium on Applied Computing, Lake Como, Italy, 19-21 March 2000.
- Lamont, Gary B. and James Douglas, "Unifying Traditional Software Engineering Methods for Effective Distributed Object System Design," Parallel and Distributed Processing Techniques and Applications Conference (PDPTA2000), Las Vegas NV, 26-30 June 2000.
- Lamont, Gary B. and Paul Harmer, "An Agent Based Architecture for a Computer Virus Immune System," of the 2000 Genetic and Evolutionary Computation Conference (GECCO2000), Las Vegas NV, 8-13 July 2000.
- Lamont, Gary B. and David VanVeldhuizen, "Measuring Multiobjective Evolutionary Algorithm Performance," Congress on Evolutionary Computation (CEC2000), San Diego CA, 16-19 July 2000.
- Lamont, Gary B. and Ergin Sezer, "Multicriteria Mission Route Planning with Multiple Aircraft & Targets Using Parallelized A* Search Algorithm," 15th International Conference on Multiple Criteria Decision Making, Istanbul, Turkey, 10-14 July 2000.
- Lamont, Gary B., Jesse Zydallis, and David Van Veldhuizen, "Messy GA Based Multi-Objective Optimization: A Comparative Statistical Analysis," 6th Parallel Programming Systems in Nature (PPSN) Conference Workshop, Paris, France, 16-20 September 2000

LIEBST, BRADLEY S., (ENY)

Liebst, B. S., "Pilot-Induced Oscillations (PIO): Causes and Corrections", Japan Society for Aeronautical and Space Sciences 13th International Session of the 37th Aircraft Symposium, Tokyo, Japan, (Invited Lecture), 13-15 October 1999.

Liebst, B. S., Saad A., Gordnier, R., Visbal, M., Beran, P., and Baker, W., "Simulation of Wing Rock Oscillations in Two DoF in Roll and Sideslip", 2000 AIAA Cincinnati-Dayton Aerospace Symposium, Dayton, Oh, 30 Mar 00.

LOTT, Lt Col JAMES A., (ENG)

Lott, James A., "Tunable Vertical Cavity Surface Emitting Lasers," Bandwidth9, Inc., 46410 Fremond Blvd, Fremont CA 94538, 27 September 2000.

Lott, James A., "Quantum Dot Microlasers Emitting at 1.3 μm ," Center for Novel Optoelectronic Materials, Stanford University, Stanford CA, 27 Sep 00.

Lott, James A., Michael J. Noble, Edward M. Ochoa, and William D. Cowan, "Tunable Red Vertical Cavity Surface Emitting Lasers Using Flexible Micro-Electro-Mechanical Top Mirrors," IEEE/LEOS Optical MEMS 2000, Koloa, Hawaii, 20-24 August 2000.

Lott, James A., Nikolai Ledentsov, Viktor M. Ustinov, and Dieter Bimberg, "Vertical Cavity Surface Emitting Lasers with InAs-InGaAs Quantum Dot Active Regions on GaAs Substrates Emitting at 1.3 μm ," 17th IEEE International Semiconductor Laser Conference, Monterey CA, 25-29 September 2000.

Noble, Michael J., Paul Sotirelis, James A. Lott, and John P. Loehr, "Optical Physics of Thin, Thick, and Tapered Oxide VCSELs," SPIE 3944-27, Photonics West '00, San Jose CA, 22-28 January 2000.

Ledentsov, Nikolai, Dieter Bimberg, Viktor Ustinov, James A. Lott, and Zhores Alferov, "Quantum Dot Lasers: The Promises Come to Reality," Third SANKEN International Symposium (Advanced Nanoelectronics: Devices, Materials, and Computing), Osaka University, Osaka, Japan, 14-15 March 2000.

Ustinov, Viktor, Nikolai Ledentsov, Zhores Alferov, James A. Lott, and Dieter Bimberg, "Long Wavelength Quantum Dot Lasers on GaAs Substrates," 8th International Symposium Nanostructures: Physics and Technology, St. Petersburg, Russian Federation, 19-23 June 2000.

Ustinov, Viktor M., Alexey E. Zhukov, Alexey R. Kovsh, Nikolai A. Maleev, Sergey S. Mikhlin, Boris V. Volovik, Yuri G. Musikhin, Yuri M. Shernyakov, Mikhail V. Maximov, Andrey F. Tsatsul'nikov, Nikolai N. Ledentsov, Zhores I. Alferov, James A. Lott, and Dieter Bimberg, "1.3 μm InAs/GaAs Quantum Dot Lasers and VCSELs Grown by Molecular Beam Epitaxy," 11th International Conference on Molecular Beam Epitaxy, Beijing, China, 10-15 September 2000.

MAGEE, Maj ERIC P., (ENG)

*Magee, Eric P., David Strong, and Gary B. Lamont, "Implementation and Test of Wave Optics Code Using Parallel FFT Algorithms," 2000 EOS/SPIE Symposium on Remote Sensing 25-29 September 2000.

MARCINIAK, MICHAEL A. (ENP)

*Cooley, W.T., M.A. Marciniak, R.L. Hengehold, Y.K. Yeo and G.W. Turner, "Radiative Recombination Dynamics in InAsSb Quantum-Well Lasers." 1999 Fall Meeting, Ohio Section of the American Physical Society/Southern Ohio Section AAPT, Wright-State University, Dayton, OH, 9 October 1999.

MATHIAS, Maj KARL S., (ENG)

Mathias, Karl S., "AFIT Research Into SUPPRESSOR Scenario Interoperability." Presented at the SUPPRESSOR User's Group Meeting, Niagra Falls NY, 13 September 2000.

Hendrix, T. Dean, James H. Cross II, Karl S. Mathias, and Larry A. Barowski, "Software Visualization and Measurement in Software Engineering Education," Frontiers in Education 1999 (FIE'99), San Juan, Puerto Rico, 10-13 November 1999.

MAYBECK, PETER S., (ENG)

Fisher, Kenneth A. and Peter S. Maybeck, "Multiple Model Adaptive Estimation with Filter Spawning," 2000 American Control Conference, Chicago IL, June 2000.

Vasquez, Juan R. and Peter S. Maybeck, "Density Algorithm Based Moving-Bank MMAE," 1999 Conference on Decision and Control, Phoenix AZ, December 1999.

*Vaneck, Barry J., Peter S. Maybeck, and John F. Raquet, "GPS Signal Offset Detection and Noise Strength Estimation in a Parallel Kalman Filter Algorithm," 1999 ION GPS-99 Conference, Nashville TN, Dec 99.

McINTYRE, Lt Col GREGORY A., (ENS)

*Bullock, Kelly, Greg McIntyre, and Raymond Hill "HITM: An Investigation into the Relationship Between Strategic Effects and OODA Loops", 68th MORS Symposium, US Air Force Academy, June 2000.

*Hill, Raymond R., Greg McIntyre, Barry Bennett. "A Methodology and Experiment Using Robust, Multi-Scenario Optimization Techniques", 68th MORS Symposium, US Air Force Academy, June 2000.

*Snodgrass, Anthony W., Mark A. Gallagher, Gregory A. McIntyre, and Jack M. Kloeber "Leontief Modeling for Military Strategic Effects," Military Operations Research Society (MORS) Symposium, United States Air Force Academy, Colorado, June 20-22, 2000.

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

*Hill, Raymond, Reginald Festejo, and J. O. Miller, "Modeling the Modular Aircraft Support System for Improved Air Force Logistics", Industrial Engineering Research Conference 2000, Cleveland OH, 23 May 2000.

*Rebulanan, Rene, J.O. Miller, and Raymond Hill, "Modeling the Joint Strike Fighter's Autonomic Logistics System," IERC, Cleveland, Ohio, 23 May 2000.

MILLER, Lt Col MIKEL M., (ENG)

Miller, Casey C., Mikel M. Miller, and John Agnew, "A Novel GPS Based Training Device to Improve Track and Cross Country Training Effectiveness," ION GPS-2000, Best Paper Presentation in the session, Sep 2000.

*Raquet, John F. and Mikel M. Miller, "GPS and GPS/INS Integration: A Tutorial," presented at the Joint Services Data Exchange for Guidance, Navigation, and Control, Norfolk VA, November 1999.

*Miller, Mikel M., Phillip Corbell, and John F. Raquet, "Design and Validation of Digitized Intermediate Frequency GPS Signal and Receiver Software Models for Developing and Comparing Advanced GPS Receiver Technologies," ION GPS-2000, Salt Lake City UT, 20-23 September 2000.

MOORE, JAMES T., (ENS)

- *Cullenbine, Christopher A, Mark A. Gallagher, and James T. Moore, “A Tabu Search Approach to the Weapons Assignment Model,” Air Force Operations Research Symposium (AFORS), United States Air Force Academy, Colorado, September 14-15, 2000.
- *Capehart, Shay, James Moore, and Raymond Hill, “Quick Look Too for Tanker Mission Planning”, Military Operations Research Society Symposium, United States Air Force Academy, CO, 20-22 Jun 00.
- *Hall, Shane, James Moore, and Raymond Hill, “A Group Theoretic Tabu Search Approach to the Air Mobility Command Routing Problem”, Military Operations Research Society Symposium, United States Air Force Academy, CO, 20-22 Jun 00.
- *Harder, Robert, Gary Kinney, Raymond Hill, and James Moore, “A Quick-Running Routing Algorithm for UAV Reconnaissance Operations”, Military Operations Research Society Symposium, United States Air Force Academy, CO, 20-22 Jun 00.
- *Cullenbine, Christopher, Mark Gallagher, and James Moore, “A Tabu Search Approach to the Weapon Assignment Model (WAM)”, Military Operations Research Society Symposium, United States Air Force Academy, CO, 20-22 Jun 00.
- *Calhoun, Kevin M., Richard F. Deckro, James T. Moore, James W. Chrissis, and John Van Hove, “Project Planning and Re-Planning”, INFORMS Salt Lake City, May, 2000.

MORRIS, Maj MICHAEL G., (ENV)

Morris, M. “Usability Evaluation in the Real World,” University of Dayton, Dayton OH, Fall 1999.

OXLEY, MARK E., (ENC)

- Oxley, M. E., “Abstract Finite Time Extinction Problems,” Southeastern Atlantic Regional Conference on Differential Equations, University of Richmond, Richmond, VA. October 1999; and at the AMS Annual meeting, Washington, D.C., January 2000.
- Oxley, M. E., “Hyperplane Arrangements (Cut the Cheese)”, Mathematics Colloquium, Sinclair Community College, Dayton, OH, February 2000.
- Oxley, M. E., “Mathematics and Air Force Problems”, D. Russell Lee Vocational School, Hamilton, OH, Apr 2000.
- Oxley, M. E., “Topological-based Capability Measures of Artificial Neural Network Architectures”, SPIE’s AeroSense, Applications and Science of Computational Intelligence, Orlando, FL, April 2000.
- Oxley, M. E., “Locally Stationary Processes,” Tenth Workshop on Statistical Signal Array Processing, (Poster session) Pocono Manor, PA, August 2000.

PACHTER, MEIR, (ENG)

- Pachter, Meir, "Stochastic Modeling – Based DGPS Position Estimation Algorithm for Satellite Clusters," California Institute of Technology, Pasadena CA, 18 May 2000.
- Pachter, Meir, "Cooperative Control of UCAVs," DAGSI Project Kickoff Meeting, AFRL/VACA, Wright-Patterson AFB OH, 28 March 2000.
- Pachter, Meir and Michael Oppenheimer, "Algorithm Development for Real-Time Control of the AirBorne Laser," 2000 Aerosense Conference, Orlando FL, 24-28 April 2000.
- Pachter, Meir and Jamey Sillence, "Loop Gain Identification for Adaptive and Reconfigurable Control," Prague, Czech Republic, 21-23 June 2000.
- Pachter, Meir and Jamey Sillence, "Loop Gain Estimation for Adaptive Control," American Control Conference, Chicago IL, 28-30 June 2000.
- Pachter, Meir and James Hall, "Formation Maneuvers in Three Dimensions," AIAA Guidance, Navigation and Control Conference, Denver CO, 9-11 August 2000.
- Doman, Daniel and Meir Pachter, "Development of a Hybrid Direct-Indirect Adaptive Control System for the X-33", AIAA Guidance, Navigation and Control Conference, Denver CO, 9-11 August 2000.
- Chandler, Phillip, Steve Rasmussen, and Meir Pachter, "UAV Cooperative Path Planning," AIAA Guidance, Navigation and Control Conference, Denver CO, 9-11 August 2000.
- McLain, Thomas, Phillip Chandler, and Meir Pachter, "A Decomposition Strategy for Optimal Coordination of Uninhabited Air Vehicles," American Control Conference, Chicago IL, 28-30 June 2000.
- Singh, Sajendra, Phillip Chandler, Siva Banda, and Meir Pachter, "Adaptive Feedback Linearizing Nonlinear Close Formation Flight Control of UAVs," American Control Conference, Chicago IL, 28-30 June 2000.
- Singh, Sajendra, Phillip Chandler, Siva Banda, and Meir Pachter, "Input-Output Invertibility and Sliding Mode Control for Close Formation Flying," AIAA Guidance, Navigation and Control Conference, Denver CO, 9-11 August 2000.

PALAZOTTO, ANTHONY N., (ENY)

- Palazotto, Anthony N. and Samir Nablousi, "Inflated Space Structural Analysis," 25th Annual Dayton-Cincinnati Aerospace Science Symposium, Dayton, OH, 30 March 2000.
- Palazotto, Anthony N. and Joshua Boatwright, "Progressive Failure of a Composite Cylindrical Shell with a Cutout Under Fatigue Loading, " 25th Annual Dayton-Cincinnati Aerospace Science Symposium, Dayton, OH, 30 March 2000.
- Palazotto, Anthony N. and Frank Pai, "A Higher Order Sandwich Plate Theory Accounting for 3D Stresses," Paper #AIAA 2000-1475, 41st AIAA SDM Conference, Atlanta, GA, 3-6 April 2000.
- Palazotto, Anthony N., and Samir Nablousi, "An Investigation of Geometric Imperfections in a Parabolic Inflated Space Structure," Paper # AIAA 2000-1729, 41st AIAA SDM Conference, Atlanta, GA, 3-6 April 2000.
- Palazotto, Anthony N. and Joshua Boatwright, "Progressive Failure Analysis of a Composite Cylindrical Shell with Square Cutouts," ASCE Engineering Mechanics Conference, University of Texas, Austin, TX, 22-24 May 2000.

Palazotto, Anthony, N., and Samir Nablousi, "Damage Evolution Analysis of Composites," ASCE Engineering Mechanics Conference, University of Texas, Austin, TX, 22-24 May 2000.

Palazotto, Anthony N., and Udai Vaydia, "Processing and Characterization of Multi- Functional Distribution Space Core Sandwich Composites," International Conference of Computational Engineering and Science, Anaheim, CA, 21-25 August 2000.

PERRAM, Lt Col GLEN P., (ENP)

*Myers, J. W., G. P. Perram, and W. B. Roh, "Spatially-Resolved Temperature Diagnostic for the Chemical Oxygen-Iodine Laser", AIAA Dayton-Cincinnati Aerospace Science Symposium, Dayton, OH, 30 Mar 2000.

Orson, J. O. and G. P. Perram, "Collection of Infrared Detonation Signatures and Characterization of Spectral Features", Workshop of Infrared Emission Measurements by FTIR, Quebec, Canada, Feb 2000.

POTOCZNY, HENRY, (ENG)

Potoczny, Henry B., "The History and Practical Uses of Cryptography," Honor Seminars of Dayton, Wright-Patterson AFB OH, Spring 2000.

PYATI, VITTAL, (ENG)

Pittman, Todd S., and Vittal P. Pyati, "A Climatology-Based Model for Long-Term Prediction of Radar-Beam Refraction," IEEE 2000 International Radar Conference, Alexandria, VA, May 2000

RAINES, Maj RICHARD A., (ENG)

*Salah, Moataz, Richard A. Raines, Michael A. Temple, and T. Glenn Bailey, "Energy Allocation Strategies for Turbo Codes with Short Frames," IEEE International Conference on Information Technology: Coding and Computing, Las Vegas NV, 27-29 March 2000.

*Swackhammer, Patrick J., Michael A. Temple, and Richard A. Raines, "Performance Simulation of a Transform Domain Communication System for Multiple Access Applications," 1999 IEEE Military Communications Conference, Atlantic City NJ, 31 October-3 November 1999.

*Salah, Moataz, Richard A. Raines, Michael A. Temple, and T. Glenn Bailey, "A General Interleaver for Equal and Unequal Error Protections for Turbo Codes with Short Frames," IEEE International Conference on Information Technology: Coding and Computing, Las Vegas NV, 27-29 March 2000.

RAQUET, Maj JOHN F., (ENG)

*Raquet, John F. and Mikel M. Miller, "GPS and GPS/INS Integration: A Tutorial," presented at the Joint Services Data Exchange for Guidance, Navigation, and Control, Norfolk VA, November 1999.

Henderson, Paul E. and John F. Raquet, "Development and Testing of a Multiple Filter Approach for Precise DGPS Positioning and Carrier-Phase Ambiguity Resolution," National Technical Meeting of the Institute of Navigation, Anaheim CA, 26-28 January 2000.

*Miller, Mikel M., Phillip Corbell, and John F. Raquet, "Design and Validation of Digitized Intermediate Frequency GPS Signal and Receiver Software Models for Developing and Comparing Advanced GPS Receiver Technologies," ION GPS-2000, Salt Lake City UT, 20-23 September 2000.

Vanek, Barry J., Peter S. Maybeck, and John F. Raquet, "GPS Signal Offset Detection and Noise Strength Estimation in a Parallel Kalman Filter Algorithm," 1999 ION GPS-99 Conference, Nashville TN, December 1999.

REID, Maj THOMAS F., (ENC)

Reid, T. F. and V. G. Kulkarni, "Optimal Admission Control for Single-Buffer Markovian Systems," INFORMS Fall 1999 Meeting, Philadelphia, PA, November 1999.

ROH, W. B., (ENP)

Russell, T. H., W. B. Roh, and J. R. Marciante, "Incoherent Laser Beam Combining using Stimulated Brillouin Scattering in Multi-mode Fibers," Presented at the Solid-state and Diode Laser Technology Review (SSDLTR-2000) in Albuquerque, NM, 5-8 June 2000

* Myers, J. W., G. P. Perram and W. B. Roh, "Spatially-Resolved Temperature Diagnostic for the Chemical Oxygen-Iodine Laser," Presented at the AIAA March Symposium, Dayton, OH, 30 Mar 2000

SHELLEY, MICHAEL L., (ENV)

Shelley, Michael L. "Abiotic & Biochemical Fate & Transport of Contaminants," Joint AFRL/DAGSI Research Program Symposium 2000, Air Force Institute of Technology, Wright-Patterson AFB OH, 18 February 2000.

SWARTZ, Maj STEPHEN M., (ENS)

*Guarnieri, Gorge, Stephen M. Swartz, and Alan W. Johnson, "Maintenance Resources Evaluation Technique," Presentation at the 68th MORS Symposium, United States Air Force Academy, 21 June 2000.

*Johnson, Alan W. and Stephen M. Swartz, "Mission Resources Value Assessment Technique," Presentation at the 68th MORS Symposium, United States Air Force Academy, 21 June 2000.

TALBERT, Maj MICHAEL L., (ENG)

*McDonald, J. Todd, Michael L. Talbert, and Scott A. DeLoach, "Heterogeneous Database Integration Using Agent Oriented Information Systems," 2000 International Conference on Artificial Intelligence (IC-AI'2000), Las Vegas NV, 2000.

Kern, Sean C., Michael T. Cox, and Michael L. Talbert, "A Problem Representation Approach for Decision Support Systems," Midwest Artificial Intelligence and Cognitive Sciences Conference, Fayetteville AK, May 2000.

TEMPLE, MICHAEL A., (ENG)

*Salah, Moataz, Richard A. Raines, Michael A. Temple, and T. Glenn Bailey, "A General Interleaver for Equal and Unequal Error Protections for Turbo Codes with Short Frames," IEEE International Conference on Information Technology: Coding and Computing, Las Vegas NV, 27-29 March 2000.

*Swackhammer, Patrick J., Michael A. Temple, and Richard A. Raines, "Performance Simulation of a Transform Domain Communication System for Multiple Access Applications," 1999 IEEE Military Communications Conference, Atlantic City NJ, 31 October-3 November 1999.

*Salah, Moataz, Richard A. Raines, Michael A. Temple, and T. Glenn Bailey, "Energy Allocation Strategies for Turbo Codes with Short Frames," IEEE International Conference on Information Technology: Coding and Computing, Las Vegas NV, 27-29 March 2000.

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

- *Craig, Matthew D., Peter J. Collins, and Andrew J. Terzuoli, Jr., "An Empirical Prediction Model of the Performance Impacts of Material Tolerances in Frequency Selective Surfaces Using the Monte Carlo Method," PIERS: Progress in Electromagnetics Research Symposium, Cambridge MA, 5-14 July 2000.
- *Gabig, Sarah J., Peter J. Collins, Andrew J. Terzuoli, Jr., Giuseppe Nesti, and Joaquim Fortuny, "A Look at Monostatic to Bistatic Equivalence Theorem," PIERS: Progress in Electromagnetics Research Symposium, Cambridge MA, 5-14 July 2000.
- *Akers, Geoffrey A., Peter J. Collins, Andrew J. Terzuoli, Jr., Krisha Pasala, and Robert B. Penno, "Low-Band Direction Finding Using an Ensemble of Antennas," PIERS: Progress in Electromagnetics Research Symposium, Cambridge MA, 5-14 July 2000.
- *Gabig, Sarah J., Kelce S. Wilson, Peter J. Collins, Andrew J. Terzuoli, Jr., Giuseppe Nesti, and Joaquim Fortuny, "Validation of Near-Field Monostatic to Bistatic Equivalence Theorem," IEEE 2000 International Geoscience and Remote Sensing Symposium, Honolulu HI, 24-28 July 2000.
- *Rupert, Scott P., Greg S. Agnes, Peter J. Collins, Andrew J. Terzuoli, Jr., and Kelce S. Wilson, "Comparisons of Control Surface Electromagnetic Scattering mechanisms," 46th Annual Tri-Service Radar Symposium, Air Force Academy, Colorado Springs CO, 27-29 June 2000.

WEEKS, DAVID E., (ENP)

- *Weeks, D.E., S.Yang, R.L.Hengehold and M.A.Marciniak, "Mid-Infrared Quantum Well Research at AFIT," ARFL SSDLTR, Albuquerque NM, June 5-8, 2000.
- Weeks, D.E., S.Yang, and T.A.Niday (GAP-98M) and "Inelastic Scattering Matrix Elements for the Reaction $B(2P_{1/2}) + H_2(j=0) \rightarrow B(2P_{3/2}) + H_2(j')$," AFRL/AFOSR Molecular Dynamics Contractors' Conference, Waltham MA, May 21-24, 2000.
- Niday, T.A., S.Yang, and D.E.Weeks, "Inelastic Scattering Matrix Elements for the Reaction $B(2P_{1/2}) + H_2(j=0) \rightarrow B(2P_{3/2}) + H_2(j')$," APS March meeting, Minneapolis MN, March 20-24, 2000.
- *Yang, S., D.E.Weeks, R.L.Hengehold, and M.R.Gregg, "Inter-subband Absorption Coefficients of [001] and [110] Si/SiGe Quantum Wells," APS March meeting, Minneapolis MN, March 20-24, 2000.
- Niday, T.A. and D.E.Weeks, "Scattering Matrix Elements for the Inelastic Collision $B(2P_{1/2}) + H_2(j=0) \leftrightarrow B(2P_{3/2}) + H_2(j')$," Chemistry Department, Ohio State University, Nov 3, 1999 .
- Niday, T.A. and D.E.Weeks, "Inelastic Scattering Matrix Elements for the Reaction $B(2P_{1/2}) + H_2(j=0) \leftrightarrow B(2P_{3/2}) + H_2(j')$," Fall OSAPS meeting, Dayton OH, Oct 8-9, 1999.
- *Yang, S., D.E.Weeks, and R.L.Hengehold, "Dispersion Relations and Optical Properties of Quantum Well Heterostructures," Fall OSAPS meeting, Dayton OH, Oct 8-9, 1999.
- MacLachlan, M.J. (DS-96S) and D.E.Weeks, "A New Application of the Interaction Picture to Calculate Reactive Scattering Matrix Elements," Fall OSAPS meeting, Dayton OH, Oct 8-9, 1999.

WIESEL, WILLIAM E., (ENY)

- Wiesel, William E. "Stability Exponents and Separation of Variables as Point Properties," SIAM Conference on Applications of Dynamical Systems, August 2000.

WOLF, PAUL J., (ENP)

Wolf, P.J., "Pressure Broadening in O_2 – Temperature Diagnostic for the Chemical Oxygen-Iodine Laser System," Physics seminar, The New School of the University of South Florida, Feb 2000

Wolf, P.J., "Ionization Mechanisms in the "Combined Release and Radiation Effects Satellite" Chemical Release Experiments," US Air Force Academy physics seminar, Mar 2000.

WOOD, AIHUA W., (ENC)

Wood, A. W., "Variational and Integral Equation Methods for Electromagnetic Scattering from Cavities," Mathematics Department Colloquium, University of Cincinnati, OH. October 1999.

Wood, A. W., "Remarks on Electromagnetic Scattering from Cavities," Mathematics Club Colloquium, Loyola University, New Orleans, LA. November 1999.

Wood, A. W., "Analysis of the Electromagnetic Scattering from a Cavity in a Ground Plane," AFRL/AFOSR Electromagnetics Workshop, San Antonio, TX. January 2000.

Wood, A. W., "Analysis and Numerical Solution of Electromagnetic Scattering from Cavities," Applied Mathematics Seminar, Michigan State University, East Lansing, MI. April 2000.

Wood, A. W., "Analysis of Maxwell's Equations for Scattering Problems," Y2K International Conference on Dynamical Systems and Differential Equations, Special Session on Nonlinear Elliptic and Parabolic Equations, Kennesaw, GA, May 2000.

Wood, A. W., "Electromagnetic Scattering from Cavities," Special Session on Electromagnetic Wave Propagation, Fifth International Conference on Mathematical and Numerical Aspects of Wave Propagation (Waves 2000), Santiago de Compostela, Spain, July 2000.

Wood, A. W., "An Integral Equation Method for Electromagnetic Scattering from a Trough in a Ground Plane," 2000 IEEE Antennas and Propagation International Symposium and USNC/URSI Meeting, Salt Lake City, UT, July 2000.

Wood, A. W., "A Time Domain Integral Equation Method for Wide-band Scattering Problems." 2000 IEEE Antennas and Propagation International Symposium and USNC/URSI Meeting, Salt Lake City, UT, July 2000.

Wood, A. W., "Mathematical Modeling of Electromagnetic Cavities," Workshop on Electromagnetic and Wave Propagation (BICCP 2000), Beijing, China, July 2000.

YEO, YUNG KEE, (ENP)

- *Cooley, W.T., M.A. Marciniak, R.L. Hengehold, Y.K. Yeo and G.W. Turner, "Radiative Recombination Dynamics in InAsSb Quantum-Well Lasers." 1999 Fall Meeting, Ohio Section of the American Physical Society/Southern Ohio Section AAPT, Wright-State University, Dayton, OH, 9 October 1999.
- *Ahoujja, M., Y.K. Yeo, R.L. Hengehold, and G.S. Pomeranke. "Electrical properties of boron doped p-SiGeC grown on n-Si substrate," presented at the Fall 1999 Meeting of the Ohio Section of the American Physical Society, held in Dayton, OH, 8-9 October 1999.
- Guido, L.J., P. Mitev, M. Gherasimova, B. Gaffey, M. Ahoujja, and Y.K. Yeo, "Isoelectronic doping of GaN with arsenic," presented at the 6th Wide Bandgap and Nitride Workshop, held in Richmond, VA, 15-17 March 2000
- *Ahoujja, M., Y.K. Yeo, R.L. Hengehold, L. J. Guido, D. K. Johnstone, and Y.H. Kim. "Electrical properties of arsenic doped GaN films grown by MOCVD," presented at the March 2000 Meeting of the American Physical Society, held in Minneapolis, Minnesota, 20-24 March 2000.
- *Kim, Y.H., M. Ahoujja, Y.K. Yeo, R.L. Hengehold, L. J. Guido, and D. K. Johnstone. "Photocapacitance transient study of arsenic doped GaN," presented at the March 2000 Meeting of the American Physical Society, held in Minneapolis, Minnesota, 20-24 March 2000.
- *Ahoujja, M., Y. K. Yeo, R. L. Hengehold, L. J. Guido, P. Mitev, D. K. Johnstone, and Y. H. Kim, "Influence of arsenic doping on the electrical properties of GaN epitaxial layers grown by MOCVD," presented at the 11th International Semiconducting and Insulating Materials Conference, held in Canberra, Australia on July 3-7, 2000.
- *McFall, J.L., R. L. Hengehold, Y. K. Yeo, and J. E. Van Nostrand. "Optical Investigation of MBE Grown Si-Doped Al_xGa_{1-x}N as a Function of Nominal Al Mole Fraction up to 0.5%," presented at the 11th International Conference on Molecular Beam Epitaxy, held in Beijing, China on September 10-15, 2000.

3.9 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

ANDREW, Col JOHN M., (ENS)

Member, Air Force Analytic Community Steering Group

Member, Data and Model Management Steering Group

Member, AF Scientist and Engineer Career Program Executive Panel

CLAYPOOLE, Maj ROGER L., (ENG)

Presenter of AFIT Warrior Briefing--presented to Air University Commander (AU/CC), Air Education and Training Commander (AETC/CC), Air Force Materiel Commander (AFMC/CC), Air Force Chief of Staff, and Secretary of the Air Force.

Chairman of the local chapter of IEEE Signal Processing Society.

CUNNINGHAM, WILLIAM A., (ENS)

Editorial Review Board - *Journal of Transportation Management*

Editorial Board - *Journal of Marketing Theory and Practice*.

Editorial Board - *Journal of Intermodal Logistics*.

Board of Directors - Transportation Research Forum.

Board of Directors - Tri Rivers Waterway Development Association.

DECKRO, RICHARD F., (ENS)

Associate Editor of *Military Operations Research*

Area Editor for Service Systems for *Computers & Industrial Engineering*

Editorial Board of *Computers & Operations Research*

Editorial Board of *IEEE Transactions on Engineering Management*.

Chair, INFORMS Bylaws, Policies & Procedures Committee

Member - INFORMS Finance Committee

Chair, Working Group 8 Information Operations/Information Warfare, Military Operations Research Society (MORS).

Delegate, 5th Canada/US Army Operational Research Symposium, Quebec City, Quebec.

DARPA's representative at IO/IA Experimentation Round Table Discussion at NPS for planning INFOCON testing for Fleet Battle Exercise Hotel.

Participated in an Information Assurance Workshop at JITC organized by IDA to address issues of operational testing for IA for OSD at request of OSD OT&E.

Participated in the *Joint IA&S Principal Investigator Meeting* in Honolulu. The IA&S program is a DARPA research initiative, July 2000.

Attended a DARPA sponsored course conducted by Sandia National Laboratories entitled *Improving Information Assurance Design through Red Teaming*, Arlington VA, August 2000.

With Capt Laura Kleen (GOR 01M) and 2Lt Joseph Beauregard (GOR 01M) attended the *AIA Student/Faculty CyberSummit 2000* at AIA headquarters in San Antonio. This first ever summit was intended to engage academicians in the research problems at AIA. Over 50 government and academics from a variety of organizations attend the meeting, August 2000.

Invited to organize and chair MORS Symposium/Workshop entitled: OPERATIONS RESEARCH METHODS FOR INFORMATION OPERATIONS: A BATTLESPACE OF THE 21st CENTURY to be held in the fall of 2001.

GALLAGHER, Lt Col MARK A., (ENS)

Director, Military Operations Research Society, Chair Prize Committee.

GOLTZ, MARK N., (ENV)

Member, Science Advisory Committee, U.S. EPA's Great Lakes/Mid-Atlantic Hazardous Substance Research Center.

City of Beavercreek Environmental Advisory Committee.

Consulting Associate Professor at Stanford University.

GUSTAFSON, STEVEN C., (ENG)

Associate Editor of *Optical Engineering*.

HALLGREN, Col WAYNE F., (EN)

Member, Applied Aerodynamics Technical Committee, AIAA

HILL, Lt Col RAYMOND R., (ENS)

Technical reviewer for the textbook *Spreadsheet Modeling and Decision Analysis*

Test bank author for textbook *Spreadsheet Modeling and Decision Analysis*.

HOUPIS, CONSTANTINE H., (ENG)

Member of the International Program Committee of the International Symposium on Quantitative Feedback Theory and Robust Frequency Domain Methods.

JACOBS, Lt Col TIMOTHY M., (ENG)

Reviewer, *SIGGRAPH 2000* Tutorials

HENGHOLD, ROBERT L. (ENP)

Member of executive committee and Honors and Awards Chair of the Ohio Section of the American Physical Society

KLOEBER, LTC JACK M., JR., (ENS)

Chosen as Eminent Engineer in the Tau Beta Pi honorary fraternity

Performed Duties as Director of the Military Operations Research Symposium

Advisor to the Decision Analysis Working Group

LIEBST, BRADLEY S., (ENY)

Member of the Dayton Area Graduate Studies Institute RESCAP Committee.

Member of the Committee to evaluate the Wright State University PhD Program.

Member of the Dayton-Cincinnati AIAA Executive Council.

Member of 2000 AIAA Dayton-Cincinnati Aerospace Symposium Committee.

Vice President of the Honors Seminars of Metropolitan Dayton.

MAGEE, Maj ERIC P., (ENG)

AFIT Signal Processing representative for the Wright State University PhD Oversight Committee.

MATHIAS, Maj KARL S., (ENG)

Member, Association for Computing Machinery.

MAYBECK, PETER S., (ENG)

Dayton Section IEEE Student Activities Chairman and member of the Section's Executive Committee (consistently since 1975).

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

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

Technical reviewer for the reference book *Space Systems Modeling and Simulation*.

MOORE, JAMES T. (ENS)

Associate Editor for *Military Operations Research*

AFIT lead for research consortium of University of Texas at Austin, Air Mobility Command, and AFIT.

MORRIS, Maj MICHAEL G., (ENV)

Faculty participant/advisor, 2000 AIS America's Conference Doctoral Consortium (chaired by Joe Valacich and Len Jessup).

Member, University of Dayton's MIS Advisory Board.

OXLEY, MARK E. (ENC)

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

RAINES, Maj RICHARD A., (ENG)

Point of Contact, developer, and presenter of AFIT Warrior Briefing--presented to Air University Commander (AU/CC), Air Education and Training Commander (AETC/CC), Air Force Materiel Commander (AFMC/CC), Air Force Chief of Staff, and Secretary of the Air Force.

Chairman, Association of Old Crows electronic Warfare Research awards committee.

Technical Paper Referee, *IEEE Communications Letters*.

Military advisor to the Test Pilot School Selection Board.

RAQUET, Maj JOHN F., (ENG)

Central Region Vice President of the Institute of Navigation.

TALBERT, Maj MICHAEL L., (ENG)

AU/CADRE committee to automate ACSC and AFIT calls for research, course advertisement, and research publications.

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

Chapter Chair for Joint IEEE Societies APS, MTT, GRS

WIESEL, WILLIAM E., (ENY)

Wiesel, William E., Member of the Prioritization Integrated Product Team, National Reconnaissance Office.

3.10 SPECIAL AWARDS OR SPECIAL RECOGNITION

3.10.1 FACULTY

BROTHERS, Maj CHARLES P., (ENG)

Received the 1999 Myril B. Reed Best Paper Award at the 43rd Annual Mid-West Symposium on Circuits and Systems for “A Fast Low-Power Logarithm Approximation with CMOS VLSI Implementation.” Co-authors were Sam SanGregory, David Gallagher, and Robert Siferd. Conference was on 10 August 2000.

CANFIELD, Lt. Col ROBERT, (ENY)

Lt Col Robert Canfield, Associate Fellow, American Institute of Aeronautics and Astronautics, Jan 2000.

CHRISSIS, JAMES W. (ENS)

Inducted as Eminent Engineer into the Tau Beta Pi honorary fraternity.

CLAYPOOLE, Maj ROGER L., (ENG)

Company Grade Officer of the Quarter for April-June 2000.

COLLINS, Maj PETER J., (ENG)

Elected senior member of the IEEE.

Promoted to Associate Professor of Electrical Engineering.

GOLTZ, MARK N., (ENV)

Air Education and Training Command Civilian Educator of the Year, 1999.

Society of the Strategic Air Command’s Air University Faculty Excellence Award, 1999.

HARTRUM, THOMAS C., (ENG)

Received the Civilian Career Service Award and medal upon retirement.

Associate Professor Emeritus of Electrical Engineering.

KLOEBER, LTC JACK M., JR. (ENS)

Inducted as Eminent Engineer into the Tau Beta Pi honorary fraternity.

LOTT, Lt Col JAMES A., (ENG)

Engineers and Scientists Award (41st annual awards ceremony) at the Affiliate Societies Council of the Engineering and Science Foundation of Dayton, 24 February 2000.

Promoted to Professor of Electrical Engineering.

MATHIAS, Maj KARL S., (ENG)

Named 1999 Auburn University Department of Computer Science and Software Engineering Top PhD Graduate Student. Award given to the top PhD student in the department. Awarded December, 1999.

Named 1999 Auburn University outstanding PhD Graduate Student. Award presented to top ten Auburn University PhD graduate students (out of a field of 200). Awarded March, 2000.

MAYBECK, PETER S., (ENG)

Received the M. Barry Carlton Award (annual award for the most outstanding technical article published in the IEEE Transactions on Aerospace and Electronic Systems) March 2000 for the paper “Control of a Large Space Structure Using MMAE/MMAC Techniques, coauthored by Gregory J. Schiller.

Received the IEEE Third Millennium Medal (for long-term service to the profession and to IEEE) awarded in March 2000.

Award for the Best Paper in Session at the ION GPS’99 Conference in Nashville TN, for “GPS Signal Offset Detection and Noise Strength Estimation in a Parallel Kalman Filter Algorithm”. Coauthored by Barry J. Vanek, and John F. Raquet.

PACHTER, MEIR, (ENG)

Elected a Fellow of the IEEE 1 January 2000.

Received Special Award from AFRL/VA.

RAINES, Maj RICHARD A., (ENG)

Elected as a Senior Member, Institute of Electronics and Electrical Engineers (IEEE).

Military Outstanding Volunteer Service Medal recipient—awarded for outstanding long-term volunteer service to local community.

RAQUET, Maj JOHN F., (ENG)

Award for the Best Paper in Session at the ION GPS’99 Conference in Nashville TN, for “GPS Signal Offset Detection and Noise Strength Estimation in a Parallel Kalman Filter Algorithm”. Coauthored by Barry J. Vanek, and John F. Raquet.

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

AFIT Instructor of the Quarter, Fall 1999.

3.10.2 STUDENTS

Cullenbine, Christopher A, Mark A. Gallagher, and James T. Moore, “A Tabu Search Approach to the Weapons Assignment Model,” Presentation selected as Best Presentation for the Strategic Operations Working Group, 68th Military Operations Research Society Symposium, June 2000.

Gallan, Roger, Jack M. Kloeber, Jr. and Richard F. Deckro, “Building and Evaluating a Multiple Objective Portfolio A Case Study”, Presentation selected as Best Presentation for the Decision Analysis Working Group, 68th Military Operations Research Society Symposium, June 2000.

Jones, Keith W. Commandant’s Award for Best Master’s Thesis, March 2000.

Jones, Keith W. Award for Best Presentation in Structural Integrity. 2000 AIAA Symposium (Dayton section).

O' Rourke, K. P., T. G. Bailey, R. Hill., and W. B. Carlton. 2000. *Dynamic Routing of Unmanned Aerial Vehicles Using Reactive Tabu Search*. Selected for Barchi Prize by the *Military Operations Research Society*.

APPENDICES

APPENDIX A FACULTY CREDENTIALS

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. Major 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. Tel. 937-255-6565, x4317 (DSN: 785-6565 x 4317), email = Gregory.Agnes@afit.edu

ANDREW, JOHN M., Col, Assistant Professor of Operations Research and Head, Department of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1976; MS, Harvard University, 1982; PhD, Harvard University, 1985. Col Andrew's areas of interest include training simulations and stochastic processes. 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, x4329 (DSN: 785-6565, x4329), email = John.Andrew@afit.edu

AROSTEGUI, MARVIN A., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BA, Applied Mathematics, University of California at Berkeley, 1987; MS, Logistics Management, Air Force Institute of Technology, 1992; PhD, Business Administration, University of Houston, 1997. Research interests include repairable inventory management, supply chain management, meta-heuristics (tabu search, simulated annealing, and genetic algorithms). Tel. (937) 255-6565, x4333 (DSN: 785-6565, x 4333), email = Marvin.Arostegui@afit.edu

AYRES, BRADLEY J., Lt Col, Instructor of Acquisition Management, Department of Systems and Engineering Management, (AFIT/ENV); MS, Software Systems Management, Air Force Institute of Technology. Lt Col Ayres' research interests include management of software development projects, control theory and governance structures within organizations, and institutional theory as applied to organizations. Tel. 937-255-3636, x4798 (DSN: 785-3636, x4798), email = Bradley.Ayres@afit.edu

BAILEY, T. GLENN, Lt Col, Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1978; MA, Oklahoma State University, 1982; MS, Air Force Institute of Technology, 1988; PhD, University of Texas at Austin, 1995. Lt Col Bailey's areas of interest include simulation, response surface methodology, heuristics, and stochastic programming. He is a member of the Institute for Operations Research and Management Science (INFORMS), the Society for Industrial and Applied Mathematics (SIAM), and the Military Operations Research Society (MORS).

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 have been 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, x4582 (DSN: 785-3636, x4582), 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

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 1990; 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. Tel. (937) 255-3636 x4826 (DSN: 785-3636, x4826), email = David.Biros@afit.edu

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 wastewater analyses and treatment, hazardous waste identification and management, land treatment of hazardous and non-hazardous wastes, groundwater monitoring and remediation, biodegradation of wastes, environmental compliance audits, and bioassays. Tel. 937-255-3636, x4721 (DSN: 785-3636, x4721), email = Charles.Bleckmann@afit.edu

BONS, JEFFREY P., Maj, Assistant 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. Major Bons' research interests include fluid dynamics and heat transfer with a focus on applications to gas turbine engines. He has published several articles relating to turbine cooling and compressor stability with a research emphasis on experimentation. Major Bons' previous assignment was as a research engineer in the Propulsion Directorate of Wright Laboratory where he was awarded the 1995 S.D. Heron Award for Basic Research. Tel. 937-255-3636 x4643 (DSN: 785-3636, x4643), email = Jeffrey.Bons@afit.edu

BRADY, STEPHAN P., Maj, Assistant Professor of Logistics Management, Department of Operational Sciences (AFIT/ENS); BA, Political Science, Western Maryland College, 1985; MPA, Public Administration, New Hampshire University, 1994; MS, Logistics Management, Air Force Institute of Technology, 1992; PhD, Business Administration, Pennsylvania State University, 1999. Research interests include transportation, logistics and supply chain management, consumable and repairable inventory management, simulation, and modeling. Reassigned to the Department of Operational Sciences, Graduate School of Engineering and Management, 1999. Tel. (937) 255-6565, x 4367 (DSN: 785-6565, x 4367), 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 interest's 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 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, CHARLES P. Jr., Maj, Assistant Professor of Electrical Engineering and Chief, Electrical Engineering Division, Department of Electrical and Computer Engineering, (AFIT/ENG); BSEE, Portland State University, 1985; MS, University of Southern California, 1987; MSEE, Air Force Institute of Technology, 1990; PhD, Air Force Institute of Technology, 1994. Major Brother's research interests are focused on space electronics, high-performance low-power microelectronic circuits, semiconductor devices, and advanced silicon materials technologies. He is funded by the Air Force Research Laboratory to develop radiation tolerant microelectronics. He has authored several papers and is a senior member in the IEEE. Tel. 937-255-3636, x4618 (DSN: 785-3636, x4618), email = Charles.Brothers@afit.edu

BROTHERS, HEIDI S., Maj, Assistant Professor of Engineering and Environmental 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. Maj Brothers' research interests include air quality management, engineering management, environmental management, and environmental management in acquisition. Major Brothers is a professional engineer. Tel. 937-255-3636, x4800 (DSN: 785-3636 x4800), email = Heidi.Brothers@afit.edu

BROWN, WILLIAM M., Professor of Electrical and Computer Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BSEE, West Virginia University, 1952; MSE, 1955, Dr Eng, The John Hopkins University, 1957. Dr. Brown has over forty years of varied experience in research, teaching, management, and administration. He was the founder and President for 24 years of the Environmental Research Institute of Michigan, prior to which he was a Professor of Electrical and Computer Engineering at the University of Michigan. His research and teaching experience is extensive in remote sensor systems, random processes, and information theory. He has served as a member of the Air Force Scientific Advisory Board and the Army Science Board. Dr. Brown is a Fellow of the Institute of Electrical and Electronic Engineers and a member of the National Academy of Engineering.

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's research applies surface physics and radiation measurements including photoluminescence spectroscopy, infrared spectroscopy, raman spectroscopy, spectro-electrochemistry and nuclear spectrometry to solve DoD problems. Applications include chemical and biochemical detection, MEMS photothermal IR detectors, nuclear fuels detection, uranium oxide surface chemistry, chemical toxicity, and imaging radiation sources and hidden interfaces using Compton CT imaging. His surface modeling research centers on using hybrid molecular mechanics/molecular orbital models to predict surface structures for silicon, silicon carbide, silica and alumina surfaces. 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, Assistant 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 fifteen 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 interests include modeling and simulation, reliability, availability, maintainability, design of experiments, and response surface methodology. Tel. 937-255-6565, x4314 (DSN: 785-6565, x4314), email = Stephen.Chambal@afit.edu

CHAN, YUPO, Professor of Operations Research; Department of Operational Sciences (AFIT/ENS); BS, Massachusetts Institute of Technology, 1967; MS, Massachusetts Institute of Technology, 1969; PhD, Massachusetts Institute of Technology, 1972. Dr. Chan's interests include transportation systems analysis, networks and combinatorial optimization, spatial-temporal analysis, traffic forecasting, multicriteria decision-making, and technology assessment. He is the author of the book, "Facility Location Transportation and Land Use: Multicriteria Analysis of Spatial-Temporal Information" and 45 refereed publications. Dr Chan was a Congressional Fellow at the Office of Technology Assessment (1979-1980). He is listed in Who's Who in Aviation and Space Technology American Men and Women of Science, Who's Who in the East (among others), and is a Fellow of the American Society of Civil Engineers.

CHILTON, LAWRENCE K., Lt Col, Assistant Professor of Mathematics, 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, 1997. Lt Col Chilton's interests include finite element analysis, h- and p- refinement, linear and nonlinear elasticity, mixed methods for nearly incompressible materials, computational electromagnetics. His recent papers have been on locking free mixed methods, mixed methods for geometrically nonlinear elasticity, and mixed methods on curvilinear elements. Tel. 937-255-3636, x4523 (DSN: 785-3636, x4523), email = Lawrence.Chilton@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. Areas of interest 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 (INFORMS), The Society for Industrial and Applied Mathematics (SIAM), the Military Operations Research Society (MORS), and Sigma Xi. Tel. 937-255-6565, x4338 (DSN: 785-656, x4338), email = James.Chrissis@afit.edu

CLAYPOOLE, ROGER L., 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

COLLINS, PETER J., Maj, Associate Professor, Department of Electrical and Computer Engineering, (AFIT/ENG); BA, Bethel College, St. Paul, Minnesota, 1985; BSEE, University of Minnesota, 1985; MSEE, Air Force Institute of Technology, 1990; PhD, Air Force Institute of Technology, 1996. Maj Collins' research interest areas include computational electromagnetics, electromagnetic radiation and scattering, radar cross section (RCS) reduction and measurement, frequency selective surfaces (FSS), antenna design and analysis, and electromagnetic design optimization techniques. He has published several papers on radiation and scattering. Tel. 937-255-3636, x4612 (DSN: 785-3636, x4612), email = Peter.Collins@afit.edu

CROWN, JOHN S., Maj, Assistant Professor of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BS, Midwestern State University, 1985; MS, Air Force Institute of Technology, 1991; PhD, Texas A&M University, 1997. Maj Crown's research interests include goodness-of-fit testing, reliability testing, design of experiments, probability and statistics, sequential tests of hypotheses, order statistics, maximum likelihood estimation, Bayes estimation, nonparametric density estimation, and model building. His previous assignments include officer promotion analysis and career field force structure analysis at HQ AFPC, and aircraft weapon systems reliability, maintainability, and availability analysis at HQ AFOTEC.

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. Areas of interest: transportation, strategic mobility, ABC 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. 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 an Associate Editor of *Military Operations Research* and Area Editor for Service Systems for *Computers & Industrial Engineering*, as well as a member of the editorial boards of *Computers & 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), 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

DELOACH, SCOTT A., Maj, Assistant Professor of Computer Science and Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BS, Iowa State University, 1982; MS, Air Force Institute of Technology, 1988; PhD, Air Force Institute of Technology, 1996. Maj DeLoach's research interests include artificial intelligence, multiagent systems engineering and design, automated software engineering and formal methods. Tel. 937-255-3636, x4581 (DSN: 785-3636 x4581), email = Scott.DeLoach@afit.edu.

DELONEY, THURMON L., II, Col, Head, Department of Electrical and Computer Engineering, (AFIT/ENG); BS, North Carolina A&T State University, 1976; MS, Massachusetts Institute of Technology, 1978; PhD, Stanford University, 1987. Col Deloney's research interests are in ballistic missile defense and free electron lasers. Tel. 937-255-2024 (DSN: 785-2024), email= Thurmon.Deloney@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, and engineering of complex systems. Dr. Franke has authored or co authored over 95 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 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

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APPENDIX B DEPARTMENT SYMBOLS AND LOCATIONS

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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 Thurmon L. Deloney, II	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 John M. Andrew	177	(937) 255-2549 (DSN: 785-2549)
ENV	Department of Systems and Engineering Management Lt Col Al E. Thal	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 will only include 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 are found at Section 1.8.

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
DISA	Defense Information Systems Agency
DoD	Department of Defense
DOE	Department of Energy
HQ AU	Headquarters, Air University
PACAF	Pacific Air Forces
SAF	Secretary of the Air Force
USAF	United States Air Force

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.

After World War II, 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 83d Congress authorized the Commander, Air University, to confer degrees upon persons in the AFIT Resident College. The college was later divided into the School of Engineering, the School of Logistics, 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. The Civil Engineering Center was also 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 which are united to promote educational advancement. AFIT has traditionally been active in both the council and in other community and interinstitutional programs.

AFIT's flexibility is such that it adjusts quickly to changing Air Force requirements. The faculty, comprised of highly qualified military and civilian personnel, stay abreast of projected Air Force

operations, and the programs are continually updated to offer its students the latest available material. For example, an Air Force Software Review in 1989 led to AFIT programs in software engineering and software systems management barely a year later. When environmental concerns culminated in the Pollution Prevention Act of 1990, AFIT designed and implemented both graduate and professional continuing education programs in environmental engineering management. In 1994, Air Force Weather requested a meteorology program designed specifically for the warfighter, and in less than one year AFIT delivered a graduate education program in military meteorology with an initial enrollment of fourteen officers.

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 AFIT resident graduate schools. In anticipation of closure, AFIT developed and began a transition and closure plan. Resident Ph.D. students scheduled for FY 97 were diverted to the Civilian Institution Program and a transition plan for actual closure was developed, identifying manpower positions for elimination in FYs 97 through 00.

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 will continue a restructuring initiative begun in FY 96 that will size the resident graduate programs to meet the Air Force education requirements of the FY 03 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 creating 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 1990s 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 recently 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; their analysis was praised by the XVIII Airborne Corps Commander 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 a \$8.9 million engineering laboratory. The facility will be used for experimental research in aeronautical engineering, electrical engineering, applied physics and environmental science. The lab officially opened in March, 2001 and will enable AFIT to continue its tradition of high quality research programs in support of the Air Force Mission.

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