

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank) 2. REPORT DATE Sept 94 3. REPORT TYPE AND DATES COVERED Final 1 Dec 93-31 May 94

4. TITLE AND SUBTITLE Workshop on Computing and Intelligent Systems 5. FUNDING NUMBERS DAAH04-94-G-0009

6. AUTHOR(S) Sanjeev R. Kulkarni

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Princeton University Princeton, NJ 08540 8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Research Office P.O. Box 12211 Research Triangle Park, NC 27709-2211 10. SPONSORING/MONITORING AGENCY REPORT NUMBER ARO 32361.1-MA-CF

11. SUPPLEMENTARY NOTES The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documentation.

12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited. 12b. DISTRIBUTION CODE

13. This grant provided block international travel funds to help enable researchers to attend an international workshop on "Computing and Intelligent Systems" held in Bangalore, India from December 20-23, 1993. The conference venue was the Indian Institute of Science, Bangalore, a Premier Research Institute in India. This conference was organized by the Indian Institute of Science in cooperation with the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore. The occasion also commemorated the SILVER JUBILEE of the department of Computer Science & Automation. The Workshop was comprised of a series of invited presentations by frontline researchers in the areas of Computer Science and Intelligent Systems, and included talks by several Indian faculty and graduate students. One of the primary objectives of the workshop was to bring together leading researchers and distinguished alumni in these areas, and to discuss and exchange ideas on frontier topics of research. The conference attracted scientific workers in the area from all over the world thus provided a forum for global technical interaction. The requested funds were instrumental in guaranteeing the technical success of the meeting by enabling participation of a sufficient number of key U.S. researchers.

14. SUBJECT TERMS 15. NUMBER OF PAGES 16. PRICE CODE 17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED 18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED 19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED 20. LIMITATION OF ABSTRACT UL

4
UNCLASSIFIED
11/19/94

DTIC
ELECTE
FEB 13 1995
S G D

Final Report for ARO Grant DAAH04-94-G-0009

ARO Proposal 32361-MA-CF: Block International Travel Funds
for Workshop on Computing and Intelligent Systems
I.I.Sc., Bangalore, India, Dec. '93

Principal Investigator:

Sanjeev R. Kulkarni
Department of Electrical Engineering
Princeton University, Princeton, NJ 08544
tel: (609) 258-6727; fax: (609) 258-3745
e-mail: kulkarni@ee.princeton.edu

Workshop Organizers:

Thomas Kailath
Dept. of Electrical Engineering
Information Systems Laboratory
Stanford University, Stanford, CA 94305
tel: (415) 723-3688, fax: (415) 723-8473
e-mail: tk@isl.stanford.edu

N. Viswanadham
Dept. of Comp. Sci. and Automation
Indian Institute of Science
Bangalore, India 560 012
tel.: 91-80-344411 ext. 368
e-mail: vishu@csa.iisc.ernet.in

Accession For	
NTIS	☒
CRA&I	☒
DTIC	☐
TAB	☐
Unannounced	☐
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	

PROJECT SUMMARY

This grant provided block international travel funds to help enable researchers to attend an international workshop on "Computing and Intelligent Systems" held in Bangalore, India from December 20-23, 1993. The conference venue was the Indian Institute of Science, Bangalore, a Premier Research Institute in India. This conference was organized by the Indian Institute of Science in cooperation with the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore. The occasion also commemorated the SILVER JUBILEE of the department of Computer Science & Automation. The Workshop was comprised of a series of invited presentations by frontline researchers in the areas of Computer Science and Intelligent Systems, and included talks by several Indian faculty and graduate students. One of the primary objectives of the workshop was to bring together leading researchers and distinguished alumni in these areas, and to discuss and exchange ideas on frontier topics of research. The conference attracted scientific workers in the area from all over the world thus provided a forum for global technical interaction. The requested funds were instrumental in guaranteeing the technical success of the meeting by enabling participation of a sufficient number of key U.S. researchers.

19950203 346

1 Description of Conference

1.1 Introduction and Conference Objectives

During the last three decades, rapid progress has been made in computer hardware and software technologies and real-time control of engineering systems using a network of computers. This trend is expected to continue well into the 21st century. Significant developments are expected to occur from the interplay and progress in several areas including notably,

- massively parallel architectures
- systems software and software engineering tools
- design and analysis of algorithms and languages
- knowledge engineering
- integrated manufacturing systems
- decision and control systems
- neural networks

The objective of the Workshop was to provide a forum for exchange of ideas on current developments, trends and issues in computing and intelligent systems between peer research groups.

1.2 Conference Format and Participants

The Workshop had an international character by design. Leading researchers from several nations participated. Part of the goals of the international nature of the conference was to enhance and perhaps initiate active research collaboration between scientists from India and the US. There were approximately 200 participants with significant participation from Indian industry.

The Workshop included more than twenty five invited lectures given by top researchers from around the world. It will also included invited sessions on new developments, poster sessions by graduate students at I.I.Sc., displays by Indian companies, and ample opportunities for discussion.

2 Use of Funds

2.1 Funded Participants

Attendance by U.S. researchers is also critical in maintaining cooperation between the two countries. These International Travel Funds were crucial in ensuring attendance by an adequate number of key U.S. researchers. The following individuals were partially supported by the ARO Grant for the amounts indicated below. The support primarily covered airfare plus a small amount of subsistence or miscellaneous expenses. The figures below do not include overhead charged to the grant.

<u>Participant</u>	<u>University</u>	<u>Amount Supported</u>
A.K. Agrawala	Univ. of Maryland	\$2409.32
D. Kapur	Univ. of Albany	\$1695.67
S.R. Kulkarni	Princeton Univ.	\$1420.17
P.R. Kumar	Univ. of Illinois	\$924.82
S.K. Mitter	M.I.T.	\$2313.25
S. Sastry	U.C. Berkeley	\$1386.19
M. Kamath	Oklahoma State Univ.	\$899.50
K. Mulmuley	Univ. of Chicago	\$1049.56

Due to the expense of travel and the number of workshop participants needing travel support, the participants were also partially supported by a similar travel grant from the National Science Foundation.

2.2 Workshop Outcome

The Workshop offered scientists in Systems, Control and Computer Science a platform to discuss recent developments, to exchange new ideas and to analyze trends of future research. The Workshop also served the increasingly important objective to strengthen cooperation between systems engineers and computer scientists from various parts of the world interested in the above areas. This Workshop was highly successful in attracting a significant number of top researchers from throughout the world. The success of the meeting depended crucially on the participation of U.S. researchers, since the U.S. is typically the leading country in these areas. The funds from this grant made it possible for a number of active U.S. researchers to participate who otherwise would have been unable to attend.

3 Appendix

Attached is a copy of the *First Announcement and Call for Papers* which was also distributed via electronic mail to researchers in the areas of interest. Three copies of the proceedings from the Workshop are also included with this final report.

**SILVER JUBILEE WORKSHOP ON
COMPUTING AND INTELLIGENT SYSTEMS**

December 20-22, 1993

**Department of Computer Science and Automation
INDIAN INSTITUTE OF SCIENCE**

Bangalore, India, 560 012

The *Department of Computer Science and Automation* and the *Jawaharlal Nehru Centre for Advanced Scientific Research* jointly announce the **Silver Jubilee Workshop on Computing and Intelligent Systems** during December 20-22, 1993, at the Indian Institute of Science, Bangalore. The Workshop will commemorate the *Silver Jubilee* of the Department of Computer Science and Automation.

Workshop Objectives:

The workshop is intended to bring together frontline researchers in the areas of *Computer Science* and *Intelligent Systems* to exchange ideas and discuss future directions in frontier research topics. It will also serve as a unique meeting ground for the department alumni, who have distinguished themselves in various capacities and all over the world.

Workshop Scope:

The workshop will feature: invited expository talks by leading researchers, invited talks by distinguished alumni of the department, and presentations by department faculty and graduate students. The talks are planned to encompass a wide spectrum of current topics in which research is being pursued at the department. The topics include: Algorithms and Complexity, Programming Methodology and Software Technologies, Parallel and Distributed Computing, Knowledge Engineering, Intelligent Manufacturing, and Learning and Neural Networks.

Participation:

Participation in the workshop is through registration, and accommodation is available for early registrants. Researchers and professionals desirous of participating in the workshop should immediately convey their intent to:

Professor N. Viswanadham
Department of Computer Science and Automation
Indian Institute of Science
Bangalore, 560 012, INDIA
Phone: +91-80-344411, Extension: 2368
Fax: +91-80-341683
Email: vishu@csa.iisc.ernet.in

Enquiries through Email may preferably be addressed to:

jubilee@csa.iisc.ernet.in