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*Summary of*

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*1990*

*M91-41*

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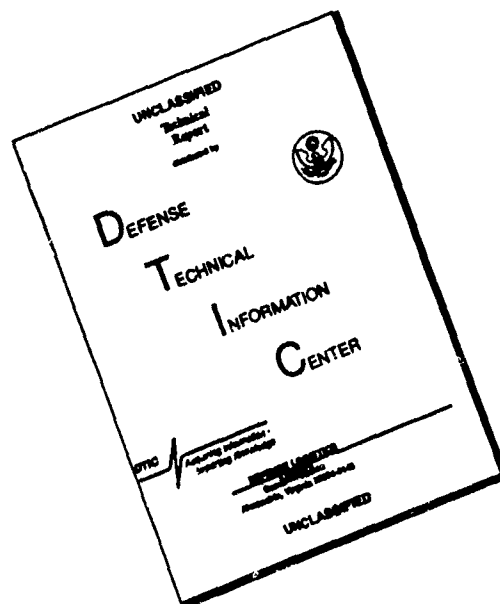
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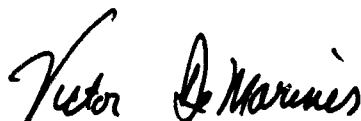
The MITRE Corporation is an independent not-for-profit organization devoted to research, development, engineering, and scientific activities in the public service. The company does not manufacture products or compete with industry.

After a reorganization in 1990, MITRE expanded from three to five operating centers. Personnel from two of the centers are located primarily at our headquarters in Bedford, Massachusetts (with one technical division located in the Washington area). These two centers are the Center for Air Force Command, Control, and Communications (C<sup>3</sup>) Systems and the Center for Intelligence and Special Programs. The remaining three operational centers are based in McLean, Virginia: the Washington C<sup>3</sup> Center, the Center for Advanced Aviation System Development, and the Center for Civil Systems.

The Center for Intelligence and Special Programs supports the Air Force Electronic Systems Division (ESD), the Army and Navy, a wide variety of intelligence agencies, and the Unified and Specified Commands. The Center provides system engineering support to components of the intelligence community, particularly in the areas of networks, information security, artificial intelligence, and workstation technologies.

This publication is an overview of the professional activities of the Center for Intelligence and Special Programs for the 1990 calendar year. As in past years, our employees have made valuable contributions to the technical and scientific communities through their documents, journal articles, presentations, and participation in group activities. Many of our staff teach in local colleges and universities. Unclassified reports generated within the Center for Intelligence and Special Programs are listed here, as well as participation of our staff in professional and honorary organizations.

We are proud of our employees and their many professional activities, successes, and contributions to the community. We are pleased to recognize them in this *Summary of Professional Activities* publication.

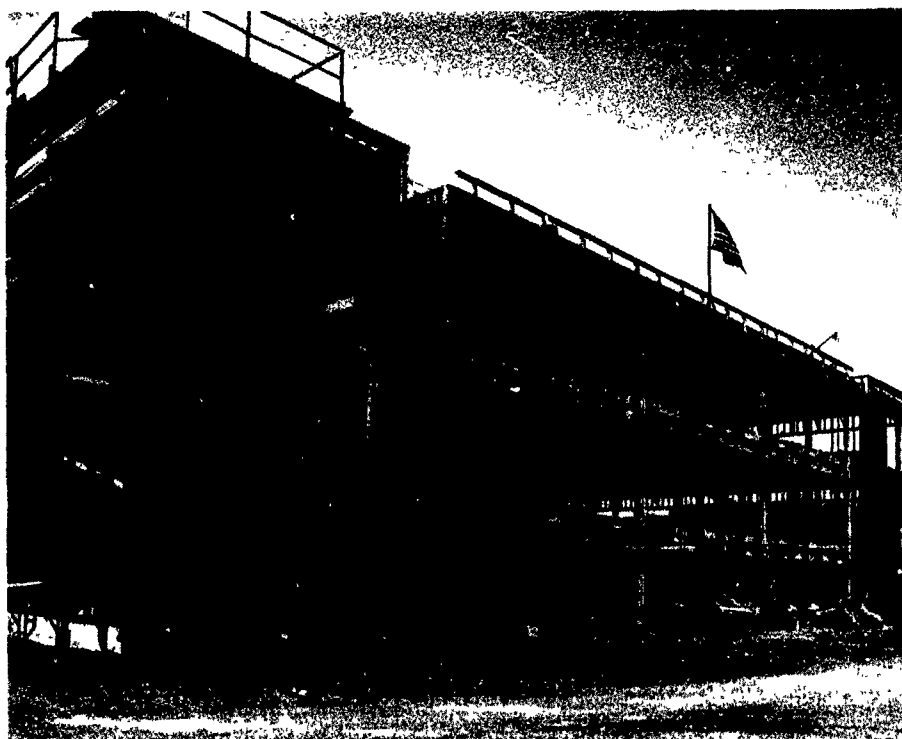


Victor A. DeMarines  
Senior Vice President and General Manager  
Center for Intelligence and Special Programs

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*1990  
Summary of  
Professional  
Activities*      **Table of  
Contents**

|  |           |
|--|-----------|
| MITRE Conferences, Workshops, Symposia, and Fairs                                | <b>1</b>  |
| MITRE Technical Reports  | <b>3</b>  |
| Presentations at External Conferences  | <b>11</b> |
| Papers Published in Refereed Professional Journals<br>and Conference Proceedings | <b>18</b> |
| Books  | <b>20</b> |
| External Professional Roles  | <b>21</b> |
| Teaching Appointments  | <b>25</b> |
| Fellows  | <b>27</b> |
| Honors and Awards  | <b>29</b> |
| Professional Societies   | <b>30</b> |
| Honorary Societies   | <b>33</b> |



*A view of work in progress  
on MITRE-Bedford's  
M-Building, Spring 1991.*

1990  
Summary of  
Professional  
Activities

**MITRE  
Conferences,  
Workshops,  
Symposia,  
and Fairs**

*These events were  
sponsored or organized by  
MITRE, and included  
participants from outside  
MITRE.*

15 March  
Third Symposium on  
Parallel Computers,  
MITRE-Washington

15 April  
Object-Oriented Technol-  
ogy Day Symposium,  
*Security in Object-  
Oriented Database  
Systems, Object-Oriented  
Programming, and  
Discrete Event Simula-  
tion in MODSIM II and  
Small Talk-80*, Bedford,  
Massachusetts

23 May  
GOSIP Awareness Day  
Symposium, MITRE-  
Washington

24 May  
GOSIP Awareness Day  
Symposium, MITRE-  
Bedford

24-25 May  
MITRE Supercomputing  
Workshop, MITRE-  
Washington

6 June  
Local Area Network  
Technology Review,  
MITRE-Bedford

19-21 June  
COTS Integration Work-  
shop, MITRE-Washington

10-12 July  
MITRE Workshop on  
Object-Oriented Design  
Methodologies, Washing-  
ton, D.C.

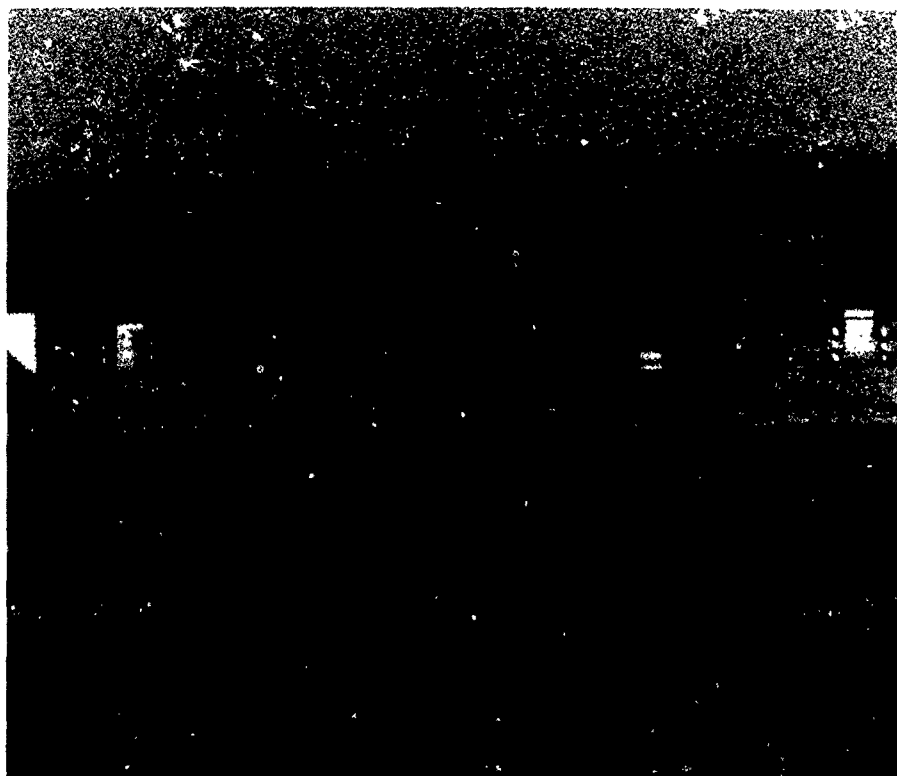
21-22 August  
COTS Integration Work-  
shop, "Local Area  
Network Security,"  
MITRE-Washington

10-11 October  
Industrial Security  
Working Group (ISWG)  
Meeting, MITRE-Bedford

17-18 October  
Air Force Association  
(AFA) Intelligence  
Symposium, MITRE-  
Bedford

18-20 November  
Technical Exchange  
Meeting VIII,  
Charlottesville, Virginia

21 December  
COTS Experiences  
Seminar, MITRE-Bedford



*The work of the Intelligence and Electronic Warfare Systems Division (G030) includes image processing, exploitation, and dissemination projects for intelligence applications. Shown here is the Joint Service Imagery Processing System (JSIPS) installed at a site in Germany for field test and evaluation.*



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**Eggers, Kenneth W., W150,**  
**LaPadula, Leonard J., G110,**  
**Olson, Ingrid W., W140**  
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Knight, Joseph M., G030**  
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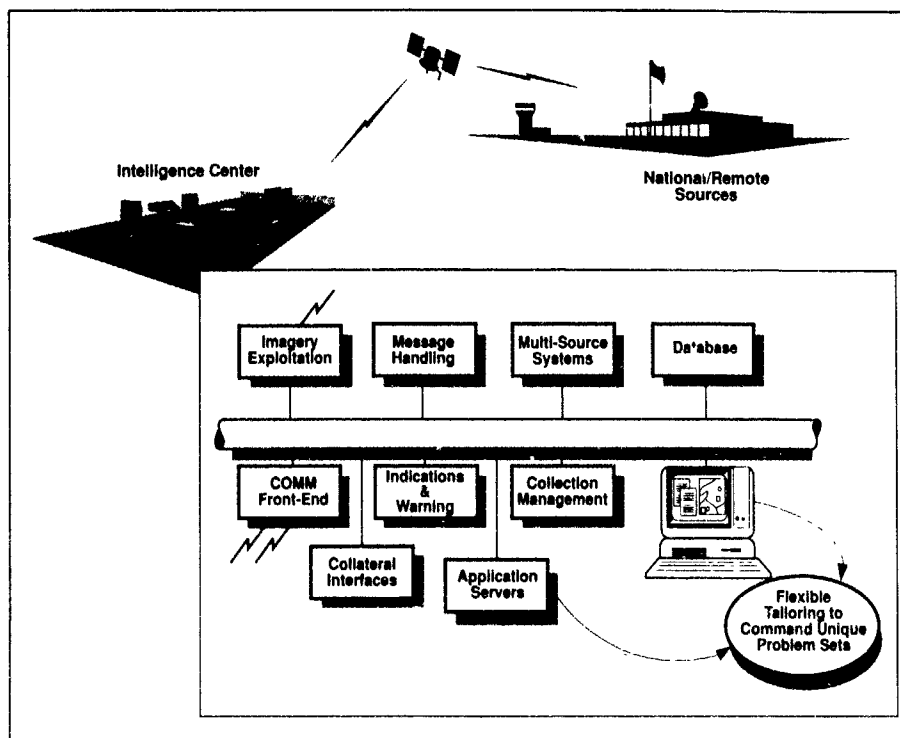
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"OSI Management  
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Commercialization," The  
1990 RADC Network  
Management/Control in  
the Tactical Environment  
Workshop, Rome, New  
York, 9-11 April 1990.

"Status of ISO Network  
Management Standards  
and Implementors  
Agreements," IEEE  
Network Operations and  
Management Symposium,  
February 1990, San Diego,  
California, 12-14 Febru-  
ary 1990.

"Roadmap to Globally  
Interoperable Network  
Management Implementa-  
tions," European Work-  
shop for Open Systems,  
Brussels, Belgium, 8-12  
October 1990.

"Needs for an Interna-  
tional Management  
Information Library,"  
Regional Coordinating  
Committee Workshop,"  
Tokyo, Japan, 18-19  
October 1990.

**Chase, Melissa P., G110**  
"Tutorial on KBSA and  
CASE Technologies,"  
Fifth KBSA Conference,  
Syracuse, New York,  
24-28 September 1990.

**Chase, Melissa P.,  
Koton, Phyllis A.,  
Vilain, Marc B., G110**  
"On Analytical and  
Similarity-Based Classifi-  
cation," Eighth National  
Conference on Artificial  
Intelligence (AAAI '90),  
Boston, Massachusetts, 29  
July-3 August 1990

**Chehey, Maureen H.,  
G110**  
"Multilevel Security: An  
Overview," Systems  
Security Officers Confer-  
ence, sponsored by the  
Defense Investigative  
Service, Woburn, Massa-  
chusetts, 2 November  
1990.

**Collins, Marie S., G110**  
"The Inference Problem in  
Multilevel Secure Data-  
base Management  
Systems," 3rd RADC  
Database Security  
Workshop, New York,  
New York, June 1990.

**DeRenzo, Emil V.,  
Edwards, David I.,  
Owens, Frank E., G140**  
"Communications System  
to Enhance Information  
Sharing Between Ser-  
vices," 58th Military  
Operational Research  
Society Symposium, 58th  
MORS Symposium,  
Annapolis, Maryland,  
June 1990.

"The Integrated Tactical  
Data Network (ITDN):  
Multi-Security Level  
Tactical Strategic Connec-  
tivity Through Existing  
Packet Switching Technol-  
ogy," 1190 IEEE Military  
Communications Confer-  
ence, MILCOM '90,  
Monterey, California,  
September 1990.

**DeRenzo Emil V., G140,  
Washburn, Thomas N.  
(Martin Marietta)**  
"X3.102 Measurements of  
the Integrated Tactical  
Data Network," 1990  
IEEE Military Communi-  
cations Conference,  
MILCOM '90, Monterey,  
California, April 1990

**Presentations  
at External  
Conferences**

**Dowling, William A., G030**  
"Real-World Performance Assessment of Antijam Communications," IEEE Boston Section Lecture Series on Spread-Spectrum Communications, February-March 1990.

**Edelstein, Roy S., G110**  
"Interconnects for Military Systems," 1990 IEEE Military Communications Conference (MILCOM '90), Monterey, California, 30 September-3 October 1990.

**Edwards, David L., G140**  
"Integrated Tactical/Strategic Data Network (ITDN) Update," and "ITDN Network Management Review," The 1990 Rome Air Development Center (RADC) Network Management/Control in the Tactical Environment Workshop, Rome, New York, April 1990.

**Farmer, William M., G110**  
"PF: The Basis of the IMPS Logic," Types and Logic Seminar, Laboratory for Computer Science, M.I.T., Cambridge, Massachusetts, 4 April 1990.

**Farmer, William M., Guttman, Joshua D., Thayer, F. Javier, G110**  
"IMPS: An Interactive Mathematical Proof System," Logic Colloquium Series, School of Computer Science, Carnegie Mellon University, Pittsburgh, Pennsylvania, 1 November 1990; Mathematics Department, Harvard University, Cambridge, Massachusetts, 30 October 1990; 10th International Conference on Automated Deduction, Kaiserslautern, Germany, 24-27 July 1990.

**Ford, William R., G110**  
"The Inference Problem in Multilevel Secure Database Management Systems," 3rd RADC Database Security Workshop, New York, New York, June 1990.

**Friedman, David H., G110**  
"Implementation of a Nonlinear Wave Digital Filter Cochlear Model," Mechanics and Biophysics of Hearing (Conference), University of Wisconsin, Madison, Wisconsin, 25-29 June 1990; IEEE International Conference on Acoustics, Speech & Signal Processing (ICASSP-90), Albuquerque, New Mexico, 3-6 April 1990.

**Gramenopoulos, Nicholas, Selander, John M., G140**  
"Multisensor Targeting Modeling," 1990 DARPA-SPIE Sensor Data Fusion Conference, Sensor Fusion, Orlando, Florida, April 1990.

"Multisensor Target Modeling Project," Intelligence Community Modeling Group Conference, ICMG Conference, Albuquerque, New Mexico, January 1990, Washington, D.C., June 1990, Rome, New York, November 1990.

**Graubart, Richard D., G110, Louanna Notargiacomo, G140**  
"Mental Health Delivery: The Problem Solved?" 1990 IFIP Database and Security Workshop, Halifax, England, September 1990.

**Guttman, Joshua D., G110**  
"IMPS: An Interactive Mathematical Proof System," 1990 IEEE Symposium on Research in Security and Privacy, Oakland, California, 7-9 May 1990.

**Guttman, Joshua D.,  
Ko, Hai-Ping, G110**  
"Verifying a Hardware  
Security Architecture,"  
1990 IEEE Computer  
Society Symposium on  
Research in Security and  
Privacy, Oakland, Califor-  
nia, 7-9 May 1990.

**Hamisevicz, Nicholas T.,  
Virotek, Ronald F.,  
G140**  
"An Automated Scenario  
Generation System for  
Tactical Ground Forces,  
Seventh Annual Workshop  
on Command and Control  
(C<sup>2</sup>) Decision Aiding,"  
hosted by the Air Force  
Institute of Technology  
(AFIT), Wright-Patterson  
AFB, Dayton, Ohio, 3-5  
April 1990.

**Johnson, Dale M., G110**  
"Information Flow in  
Nondeterministic Sys-  
tems," 1990 IEEE  
Symposium on Research  
in Security and Privacy,  
Oakland, California, 7-9  
May 1990.

**Katz, Joseph L., G110,  
Smith, Barry D., D040**  
"Range Scheduling Aid,"  
The Third International  
Conference on Industrial  
and Engineering Applica-  
tions of Artificial Intelli-  
gence and Expert Systems,  
IEA/AIE-90, Charleston,  
South Carolina, July 1990.

**LaBarre, Claude E.,  
G110**  
"TCP/IP Network  
Management," RADC  
Workshop on Network  
Management for Tactical  
Networks, Rome, New  
York, 8-11 April 1990.

**Lafferty, Edward L.,  
G110**  
"Computer Technology,  
An Executive Summary,"  
BOLD STROKE Senior  
Executive Forum on  
Software Management,  
Maxwell AFB, Alabama,  
20-22 March 1990; 6-8  
November 1990.

Keynote speaker, "AI and  
Ada — A Good Marriage  
or a Shotgun Wedding,"  
sponsored by George  
Mason University, The  
Institute for Defense  
Analyses, and the Soft-  
ware Consortium in  
cooperation with the ACM  
SIGAda AI WG and  
AJPO, Reston, Virginia,  
15 November 1990.

Guest speaker, "Ada  
Technology Transition,"  
TRI-Ada '90 Conference,  
ACM/SIGAda and  
Baltimore SIGAda,  
Baltimore, Maryland, 4  
December 1990

**LaPadula, Leonard J.,  
G110**  
"Formal Modeling in a  
Generalized Framework  
for Access Control,"  
Computer Security  
Foundations Workshop  
III, Franconia, New  
Hampshire, 14 June 1990.

**Lee, Bonita G., G030**  
"Pattern Spectrum  
Morphology for Texture  
Discrimination and Object  
Recognition," 1990 SPIE  
Intelligent Robots and  
Computer Vision IX,  
Boston, Massachusetts,  
November 1990.

**Lehar, Steven M.,  
Howells, Timothy P.,  
Smotroff, Ira G., G110**  
"Application of Grossberg  
and Mingolla Neural  
Vision Model to Satellite  
Weather Imagery,"  
International Conference  
on Neural Networks,  
Paris, France, June 1990.

**LeMoine, Julie E., G110**  
"DODIIS Network  
Security for Information  
eXchange," Compart-  
mented Mode Workstation  
Application Day, McLean,  
Virginia, 21 September  
1990; Network Interface  
Equipment 1990 Vendor  
Information Day, McLean,  
Virginia, 27 November  
1990

**Presentations  
at External  
Conferences**

**Maciorowski, Susan M., G030**

"Insights into Public/Private Sector Processes," GAO/IMTEC Management Conference on Similarities and Differences between the Public and Private Sector, Solomons Island, Maryland, February 1990.

**Marcotte, Richard A., G110**

"Model-Based Diagnostic Reasoning Using VHDL," VHDL Users' Group Meeting, Boston, Massachusetts, 4-6 April 1990.

"System-Level Application of Model-Based Diagnostic Reasoning," Fourth Leesburg Workshop on R&M CAE in Concurrent Engineering, Leesburg Virginia, 9-11 October 1990.

**Maybury, Mark T., G110**

"Generating Descriptions, Comparisons, Summaries and Recommendations from a Knowledge Based Tactical Mission Planner," The 3rd International Conference on Human-Machine Interaction and Artificial Intelligence in Aeronautics and Space, ODYSSUD, Toulouse, Blagnac, France, 26-28 September 1990.

"Generating Natural Language Definitions from Classification Hierarchies," American Society for Information Science (ASIS) '90 Workshop on Classification Research, Toronto, Canada, 4 November 1990.

Invited Lecturer, "Machines That Talk Like You and Me," at annual Sigma Xi dinner, Andover-Newton Theological Seminary, 11 November 1990.

**McKenna, Sean J., G030**

"Advanced Processing Techniques," 27th Annual Association of Old Crows Electronic Warfare Technical Symposium, Boston, Massachusetts, 23-27 September 1990.

**Millen, Jonathan K., G110**

"The Interrogator: Protocol Vulnerability Analysis," Workshop on Mathematical Concepts of Dependable Systems, Oberwohlfach, West Germany, April 1990.

"Security for Knowledge-Based Systems," Workshop on Secure Object-Oriented Systems, Karlsruhe, West Germany, April 1990.

"Hookup Security for Synchronous Machines," IEEE Computer Security Foundations Workshop III, Franconia, New Hampshire, June 1990.

"Honesty is the Best Policy," RADC Workshop on Secure Database Systems, Castile, New York, June 1990.

"Single-Level Objects for Security Kernel Implementation," 13th National Computer Security Conference, Washington D.C., October 1990.

**Mulvehill, Alice M., G110, Nicholson, James (NASA, Kennedy Space Center)**

"Expert Knowledge Techniques Applied to the Analysis of Electric Field Mill Data," Conference on Atmospheric Electricity, Kananaskis Provincial Park, Alberta, Canada, 22-26 October 1990.

**Mutchler, Carl N., Laskowski, Sharon J., G140**

"Script Matching and Belief Propagation," 5th IEEE International Symposium on Intelligent Control, Philadelphia, Pennsylvania, September 1990.

**Neiberg, Maurine J., G110**

"Efficient Diagnosis of Sequential Circuits Using Design Models," Artificial Intelligence and Advanced Automation Techniques for Fault Diagnosis and Recovery Workshop, Houston, Texas, June 1990.

**Nieparent, Richard, Jr., G140**

"ASAS Inter-BFA Protocols," Army Technical Interoperability Working Group, Ft. Monmouth, New Jersey, 5 April 1990.

"Use of OSI Protocols for U.S. Army Tactical Command and Control Applications," NATO OSI Military Symposium (Peer Reviewed), The Hague, Netherlands, 6-9 June 1990.

"TCP/OSI/GOSIP: Tools for Coexistence," UNIX EXPO Conference, New York, New York, 31 October-2 November 1990.

**O'Keeffe, Jonathan, G110**

"The Inference Problem in Multilevel Secure Database Management Systems," 3rd RADC Database Security Workshop, New York, New York, June 1990.

**Parker, Richard L., G110**

"Layer 2 Security Services for LANs," National Computer Security Conference, Washington, D.C., October 1990.

**Pease, Barbara J., G110**

"Position of Extending the General Terminal Interface Semantics for TFA," IEEE P1003.8 POSIX Transparent File Access Committee meetings, New Orleans, Louisiana, January 1990.

**Prelle, Myra Jean, G110**

"Distributed Object-Oriented Programming," RADC/COAC Technology Interchange, 27-29 November 1990.

**Prelle, Myra Jean, G110, Wollrath, Ann M., G110, Brando, Thomas J., G110, Bensley, Edward H., D070**

"The Impact of Selected Concurrent Language Constructs on the SAM Runtime System," Workshop on Object-Based Concurrent Systems at OOPSLA/ECOOP '90 Joint Conference, Ottawa, Canada, October 1990.

**Prescott, Leslie S., G030**

"System Architecture for Single Site Passive Ranging," 1990 U.S. DOD Joint Service Combat Identification Systems Conference, Monterey, California, 4-6 December 1990.

**Rebovich, George, G030**

"The NATO Identification System Employment Architecture," 1990 U.S. DOD Joint Service Combat Identification Systems Conference, Monterey, California, 4-6 December 1990.

**Roberts, Barbara H., G110**

"Automatic Simulation of Extended Finite State Machines for Session Layer Protocol Verification," Simulation Computer Society Conference '90, Calgary, Alberta, Canada, 16-18 July 1990.

"Fukushima's Neural Network," IEEE Signal Processing, M.I.T., Lincoln Laboratory, Lexington, Massachusetts, 18 December 1990.

**Shirey, Robert W., G140**

"Defense Message System Security," Armed Forces Communications and Electronics Association (AFCEA) Military/Government Computing Conference and Exposition, January 1990.

"Defense Message System Security," 13th National Computer Security Conference, October 1990.

**Presentations  
at External  
Conferences**

**Silverman, Robert D., G110**

"Parallel Polynomial Arithmetic over Finite Rings," Cornell Mathematical Sciences Institute Workshop on Computer Algebra and Parallelism, Ithaca, New York, May 1990.

"An Analysis of Group Orders on Elliptic Curves," West Coast Number Theory Conference, Pacific Grove, California, December 1990.

**Smith, Chester L., G030**

"Features that Distinguish a High Power Microwave Weapon from a Radar or Jammer," Fifth National Conference on High Power Microwave Technology, West Point Military Academy, 10-15 June 1990.

**Smith, Irving R., G030**

"Qualitative Description of Upset Phenomena Created by Signal Overload," Querque Crows Symposium on Test and Evaluation of Advanced EW Technologies, Sandia National Laboratories, Albuquerque, New Mexico, 17-19 April 1990.

"Thermal Overload Induced in Semiconductor Materials under Single and Multiple Pulse Free Field Radiation," and "Statistical Methods for Estimating Front-Door Coupling Loss," Fifth National Conference on High Power Microwave Technology, West Point Military Academy, 10-15 June 1990.

**Smotroff Ira G., G110**

"Meteorological Classification of Satellite Imagery Using Neural Network Data Fusion," AIRIES 90 Workshop, Artificial Intelligence Research in the Environmental Sciences, Quebec, Canada, 26 September 1990.

"Meteorological Classification of Satellite Imagery Using Neural Network Data Fusion," IEEE International Joint Conference on Neural Networks, San Diego, California, June 1990.

"The Iterative Atrophy Self Scaling Learning Algorithm," Constructive and Destructive Learning Algorithms Workshop, IEEE Conference on Neural Information Processing Systems — Natural and Synthetic, Denver, Colorado, November 1990.

**Sprung, James G., G140**

"Storage and Transmission Requirements," Fingerprint Image Workshop at the National Institute of Standards and Technology, Gaithersburg, Maryland, September 1990.

"NCIC 2000 Interface Requirements Specification," NCIC Regional Working Groups, Carson City, Nevada, September 19; Atlanta, Georgia, September 26-27; Battle Creek, Michigan, November 27-28; Albany, New York, November 29-30.

**Thuraisingham, Bhavani M., G110**

Presented panel paper, "Database Security — Threats, Solutions, Designs and Products," at the 6th International Data Engineering Conference, Los Angeles, California, February 1990.

"Mathematical Formalisms for Multilevel Object-Oriented Systems," Workshop on Object-Oriented Database Security, Karlsruhe, West Germany, April 1990.

"Recursion Theoretic Complexity of the Inference Problem in Database Security," Computer Security Foundations Workshop III, Franconia, New Hampshire, June 1990.

"Novel Approaches to the Inference Problem," "Trusted Distributed Database Management Systems," and "The Inference Problem in Multilevel Secure Database Management Systems," 3rd RADC Database Security Workshop, New York, New York, June 1990.

"Multilevel Security for Multimedia Systems," 4th IFIP Database Security Workshop, Halifax, England, September 1990.

Presented two panel papers, "Issues in Trusted Distributed Database Management Systems — A Position Paper," and "Issues in Multilevel Secure Object-Oriented Database Management Systems — A Position Paper," at the 13th National Computer Security Conference, Washington, D.C., October 1990.

**Thuraisingham, Bhavani M.,**  
**Kamon, Ammiel, G110**  
"Secure Query Processing in Distributed Database Management Systems — Design and Performance Study," 6th Computer Security Applications Conference, Tucson, Arizona, December 1990.

**Trostle, Jonathan T., G110**  
"The Serial Product of Controlled Signalling Systems: A Preliminary Report," Computer Security Foundations Workshop III, Franconia, New Hampshire, June 1990.

**Vilain, Marc B., G110**  
"Getting Serious about Parsing Plans: A Grammatical Analysis of Plan Recognition," Eighth National Conference on Artificial Intelligence (AAAI '90), Boston, Massachusetts, 29 July–3 August 1990.

"Function Anaphora with Replacement," Ninth European Conference on Artificial Intelligence (ECAI '90), Stockholm, Sweden, 6–10 August 1990.

**Wefer, Frederick L., G140**  
"Ins and Outs of Hidden Line Removal," Template Graphics Software (TGS) User Network Conference, Dallas, Texas, August 1990.

**Papers  
Published in  
Refereed  
Professional  
Journals and  
Conference  
Proceedings**

**Berger, Jeffrey L., G110,  
Picciotto, Jeffrey, G110,  
Woodward, John P. L.,  
G110,  
Cummings, Paul. T.  
(Digital Equipment  
Corporation)**  
"Compartmented Mode  
Workstation: Prototype  
Highlights," *IEEE  
Transactions on Software  
Engineering*, Vol. 16, No.  
6, June 1990, pp. 608-618.

**Farmer, William M.,  
G110**  
"A Partial Functions  
Version of Church's  
Simple Theory of Types,"  
*Journal of Symbolic Logic*,  
Vol. 55, No. 3, September  
1990, pp. 1269-1291.

**Farmer, William M.,  
Ramsdell, John D.,  
Watro, Ronald J., G110**  
"A Correctness Proof for  
Combinator Reduction  
with Cycles," *ACM  
Transactions on Pro-  
gramming Languages  
and Systems*, Vol. 12,  
No. 1, January 1990,  
pp. 123-134.

**Koton, Phyllis A., G110**  
"A Medical Reasoning  
Program that Improves  
with Experience," *Com-  
puter Methods and  
Programs in Biomedicine*,  
Volume 30, Nos. 2/3.  
(Also appeared in *Causal  
AI Models: Steps Towards  
Applications*, 1990,  
Washington D.C.:  
Hemisphere Publishing  
Company.)

**Moser, Philip J., G140**  
"Complex Resonances  
of Conducting Spheres  
with Glossy Coatings,"  
*IEEE Transactions on  
Antennas and Propaga-  
tion*, Vol. 38, February  
1990, pp. 236-240.

**Nadel, Mark E., G110,  
Stavi, Jonathan (Bar Ilan  
University, Ramat Gan,  
Israel)**  
"On Models of the  
Elementary Theory of  $(Z,  
+, 1)$ ," *The Journal of  
Symbolic Logic*, Vol. 55,  
No. 1, March 1990

**Neiberg, Maurine J.,  
G110**  
"System-Level Applica-  
tions and Research  
Directions for Model-  
Based Diagnostic Reason-  
ing," *Proceedings of  
Second AAAI Workshop  
on Model Based Reason-  
ing*, Boston, Massachu-  
setts, July 1990.

**Shirey, Robert W., G140**  
"Defense Data Network  
Security Architecture,"  
*Computer Communication  
Review*, April 1990.

**Silverman, Robert D.,  
G110**  
"Parallel Polynomial  
Arithmetic over Finite  
Rings," *Journal of  
Parallel and Distributed  
Computing*, Vol. 10,  
November 1990,  
pp. 265-271.

**Silverman, Robert D.,  
G110,  
Montgomery, Peter L.  
(UCLA)**  
"An FFT Extension to the  
P-1 Factoring Algorithm,"  
*Mathematics of Computa-  
tion*, Vol. 54, April 1990,  
pp. 839-853.



**Thayer, F. Javier, G110,  
Frid, Hermano (Federal  
University of Rio de  
Janeiro)**

"An Abstract Version of  
the Morse Index Theorem  
and Its Application to  
Hypersurfaces of Constant  
Mean Curvature," *Boletim  
da Sociedade Brasileira  
de Matematica*, Vol. 20,  
No. 2, 1990, pp. 59-68.

**Thuraisingham, Bhavani  
M., G110**

"Security in Object-  
Oriented Database  
Systems," *Journal of  
Object-Oriented Program-  
ming*, Vol. 2, No. 6,  
March/April 1990.

"Towards the Design of a  
Secure Data/Knowledge  
Base Management  
System," *Data and  
Knowledge Engineering  
Journal* (North Holland),  
Vol. 5, No. 1, March 1990.

"Design of LDV — A  
Multilevel Secure Data-  
base Management  
System," *IEEE Transac-  
tions on Knowledge and  
Data Engineering*, Vol. 2,  
No. 2, June 1990.

"Artificial Intelligence  
Applications in Data-  
base Security," *Com-  
puter Security Journal*,  
Vol. 6, No. 1, November  
1990 (Miller Freeman  
Publishers).

**Thuraisingham, Bhavani  
M., G110,**

**Konar, Ferit (Honeywell),  
Felix, Paul (Honeywell)**

"XIMKON — an Expert  
Simulation and Control  
Program," *Artificial  
Intelligence in Process  
Engineering*, Academic  
Press, May 1990, Ed:  
M. Mavronopoulos.

**Books**

**Books**

**Brusil, Paul J., G110**  
"The NMSIG: A Phased Approach to OSI-Based Network Management," chapter in the book, *Network Management*, McGraw-Hill, Delran, New Jersey, 1990.

"The Commercialization of OSI Management Standards," chapter in the book, *Network Management*, McGraw-Hill, Delran, New Jersey, 1990.

**Brusil, Paul J.,  
LaBarre, Claude E.,  
G110**  
"Network Management Update: MAP/TOP, TCP/IP, and GOSIP," chapter in the book, *Network Management*, McGraw-Hill, Delran, New Jersey, 1990.

**Rodi, Linda L., G110,  
Dalton, R. E. (Vitro Corp.),  
Pierce, J. A. (Vitro Corp.)**  
"Graphical Knowledge Acquisition for Fault Diagnosis and Repair," chapter in the book, *Readings in Knowledge Acquisition: Current Practices and Trends*, K. L. McGraw and C. R. Westphal, eds., Ellis Horwood Ltd., Chichester, United Kingdom, 1990.

**Stevens, Roger T., G030**  
*Fractal Programming in Turbo Pascal*, M&T Books, Redwood City, California, 1990.

*Fractal Programming and Ray Tracing with C++*, M&T Books, Redwood City, California, 1990.

*Advanced Fractal Programming in C*, M&T Books, Redwood City, California, 1990.

*This category includes MITRE staff who played a special role (beyond that of "member") in external professional organizations.*

**Ames, Stanley R., G110**  
Standards Chair for the IEEE Technical Committee on Computer Security and Privacy; IEEE Standards Activity Board; IEEE Standards Coordinating Committee.

**Brasie, Ruth A., G030**  
First Vice President of Boston Section of Society of Women Engineers.

**Brusil, Paul J., G110**  
Convenor and Chairman of the U.S. Department of Commerce's National Institute of Standards and Technology's Open Systems Interconnection Workshop's Network Management Special Interest Group and its liaison to the Interoperability Technology Association for Information Processing — Japan; Member of the Executive Committee of the U.S. Department of Commerce's National Institute of Standards and Technology's Open Systems Interconnection Implementors Workshop; North American Open Systems Interconnection User Delegate to the International Regional Workshop Coordinating Committee

for the International Organization for Standardization's (ISO's) International Standards Profiles; Co-Chair for Advanced Planning, Executive Committee member, Program Committee member and referee for the Second International Symposium on Integrated Network Management, Washington, D.C., April 1991; Program Committee member, Session Organizer and Session Chair for the 1990 IEEE Network Operations and Management Symposium (NOMS '90), San Diego, California, February 1990; Executive Committee member and Program Committee member for the 1992 IEEE Network Operations and Management Symposium (NOMS '92), Memphis, Tennessee, March 1992; Member Advanced Planning Committee of the Third International Symposium on Integrated Network Management, Panama City, Florida, April 1993; Secretary of the Institute of Educational Services.

**Cooley, Jerry L., G110**  
Director of Public Relations, San Antonio Computer Society.

**Evans, Bruce P., G030**  
President of Albuquerque Chapter, Association of Old Crows.

**Farmer, William M., G110**  
Reviewer for the *Journal of Symbolic Logic*.

**Gerdeman, Peter, G140**  
Principal Member, ANSI X3B11, American National Standards Institute, Standards Technical Committee Promoting Optical Media Interchangeability.

**Gramenopoulos, Nicholas, G140**  
Member, Applied Imagery Pattern Recognition (AIPR) Workshop, and is a member of its Steering Committee and Chairman of Conference arrangements.

**Graubart, Richard D., G110**  
Organized and participated in panel, "Access Control Revisited: A Time for a Retrospective," National Computer Security Conference, October 1990; organized and chaired panel, "Trusted Subject-Based DBMSs," Sixth Computer Security Applications Conference, December 1990.

1990  
Summary of  
Professional  
Activities

**External  
Professional  
Roles**

**Guttman, Joshua D., G110**  
Referee, National Computer Security Conference; Referee, IEEE Symposium on Research in Security and Privacy; Session Chair, National Computer Security Conference, Washington, D.C.

**Jacobs, Joel D., G110**  
Internet Activities Board (IAB), Internet Engineering Task Force (IETF), Security Area Advisory Group (SAAG).

**Janeri, John V. A., G110**  
Reviewer for *IEEE Computer Magazine*, member of the Hypermedia/CD-ROM Subcommittee of the Boston Computer Society.

**Kaseman, Tamara C., Bigelow, Joseph S., Blank, Andrew J., G140**  
NATO Systems Planning Group for two meetings of the Allied Command Europe (ACE) Intelligence Architecture Working Group.

**Ko, Hai-Ping, G110**  
Mathematical Reviewer for American Mathematical Society; Referee for the journal *Algorithmica*.

**Koton, Phyllis A., G110**  
Reviewer for *Cognitive Science Journal*; Reviewer for AAAI Spring Symposium, Spring 1990.

**LaBarre, Claude E., G110**  
U.S. Delegate to ISO/IEC Sc21/WG4 Network Management; Chair of the Internet Engineering Task Force (IETF) OSI Internet Management (OIM) Working Group.

**Labonté, Robert C., G110**  
Co-editor of *IEEE Transactions on Education*, Special Issue on NASA Self-Contained Payloads Program.

**Lafferty, Edward L., C 10**  
"Software and Computer Science Overview," panel member of The Government's Role in Performing Research in the United States, 1990 ACM Eighteenth Annual Computer Science Conference, Washington, DC, 20-22 February 1990.

Workshop Chairman for AAAI-91 Conference.

**McLaughlin, Ann V., G110**  
Member of the Steering and Technical Committee for OSINET.

**Mekshes, Michael W., G110**  
Member of the MIL-STD-188-131 Video Teleconferencing Standards Committee.

**Millen, Jonathan K., G110**  
Reviewer for *IEEE Transactions on Software Engineering, Communications of the ACM*, and *ACM Transactions on Computer Systems*; Member of Program Committee, IEEE Computer Security Foundations Workshop III and 13th National Computer Security Conference.

**Nadel, Mark E., G110**  
Editor, *Notre Dame Journal of Formal Logic*.

**Nesbit, Robert F., G030**  
Member of Defense Science Board 1990 Summer Study, "Technology for Tactical Forces"; Member of Defense Science Board 1990 Special Study, "Technology Support to Desert Shield"; Expert witness for Senate Foreign Relations Committee on sensors for "Open Skies" Treaty.

**Nieparent, Richard J., G140**

Member of the American National Standards Institute (ANSI) X3T5 standards committee responsible for the U.S. contributions to the development of the International Standards Organization's (ISO) OSI Reference Model and upper layer protocols; Chairman of the Sponsor OSI Support Cluster Group, and is responsible for obtaining local and outside speakers. The objective of the SOS group is to provide the MITRE technical staff with an understanding of the problems and issues associated with transitioning to GOSIP; Initialized and is responsible for the overall MITRE support to the Center for Excellence in Education's Research Science Institute (RSI) summer program. RSI is a program that selects highly talented high school students for a 6-week summer program of research and education; Panel member of Session W1 — "TCP/IP/GOSIP: A Pathway to Computer Networking," UNIX EXPO Conference, New York, New York, 31 October–2 November 1990.

**Picciotto, Jeffrey, G110**

MITRE Advisory Committee Representative and Technical Liaison Officer to the X Consortium; Member of the IEEE Portable Operating System Interface for Computer Environments (POSIX) Security Working Group; Member of the IEEE Technical Committee on Operating Systems Balloting Group.

**Prelle, Myra Jean, G110**

Referee, *IEEE Transactions Parallel and Distributed Systems*; *ACM Transactions on Computer Systems*.

**Ramsdell, John D., G110**

Secretary for the P1178 Working Group of the IEEE Microprocessor Standards Committee Standardizing the Scheme Programming Language.

**Roberts, Barbara H., G110**

Session Chairperson at the 1989–1990 Simulation Computer Society Conference '90, Calgary, Alberta, Canada, 16–18 July 1990; Group Chairperson at the 1990–1991 Simulation Computer Society Conference '91, Baltimore, Maryland, 22–24 July 1991; Finance and Budget Chair for IEEE Signal Processing Mini Conference, April 1991.

**Ruh, William A., G140**

ACM Object Oriented Programming Languages, Systems, and Applications (OOPSLA), Conference Committee Member, 1990.

**Silverman, Robert D., G110**

Referee for the Tenth IEEE Symposium on Computer Arithmetic; Referee for *Mathematics of Computation Journal*.

**Smith, Chester L., G030**

Chaired the Session on Electromagnetic Environments at the 1990 IEEE International Symposium on EMC, Washington, D.C., August 1990; Panelist at the 1990 National Association of Broadcasters Symposium, September 1990.

**Thibodeau, Gregg J., G110**

"Installing and Managing Workstations," Panel Member, Engineering Workstations Conference 1990 (EWC 90), Boston, Massachusetts, July 1990.

**External  
Professional  
Roles**

**Thuraisingham, Bhavani  
M., G110**

Member of the Editorial Board of the *Journal of Computer Security*; Database Security Track Chair at the 6th Computer Security Applications Conference; Reviewer for *IEEE Computer*, *IEEE Transactions on Knowledge and Data Engineering*, *IEEE Transactions on Software Engineering*, John Wiley and Sons, National Science Foundation, 6th Computer Security Applications Conference, 4th IFIP Database Security Workshop.

**Vilain, Marc B., G110**

Area Chair (knowledge representation) Program Committee of Ninth National Conference on Artificial Intelligence (AAAI '91); Area Chair (qualitative reasoning) Program Committee of Twelfth International Conference on Artificial Intelligence (IJCAI '91); Organizing Committee, Spring Symposium on Implemented Knowledge Representation Systems, sponsored by the American Association for Artificial Intelligence; Referee, *Journal of Automated Reasoning*

**Wales, Charlotte W.,  
G140**

IEEE P610 Computer Dictionary Working Group (Member of Standards Group).

**Warren, James, G140**

Organized activities for Subgroup 11, Special Operations-Low Intensity Conflict, at the 58th MORS Symposium, held at the Naval Academy, Annapolis, Maryland, June 1990.

**Watro, Ronald J., G110**

Reviewer for *Computing Reviews*.

**Wefer, Frederick L.,  
G140**

1990 President of Template Graphics Software (TGS) User Network (TUN).

**Benitez, Alexander,  
G140**

Instructor, Science/  
Mathematics Cluster,  
Germantown Campus,  
Montgomery College,  
physics, electrical engi-  
neering, mechanical  
engineering.

**Bloom, Michael J., G030**

Lecturer in Engineering  
Management, West-  
ern New England  
College, Springfield,  
Massachusetts.

**Burger, John D., G110**

Instructor, Computer  
Science, Metropolitan  
College, Boston  
University.

**Cavanagh, Mary Ann,  
McQuaid, Rosalie M.,  
G110**

"TCP/IP Protocols" and  
"TCP/IP Protocols Lab  
Notebook and Instruction  
Manual," Course taught at  
NSA, Fort Meade,  
Maryland, January 2-5  
1990; "Socket Program-  
ming Training Course"  
and "Socket Programming  
Lab Notebook," Course  
taught at NSA, Fort  
Meade, Maryland, June  
12-14 1990.

**Cooley, Jerry L., G110**

Adjunct Faculty, Park  
College. Kelly AFB and  
Lackland AFB Education  
Centers, Computer  
Science Department,  
"Introduction to Computer  
Programming —  
PASCAL;" "Selected  
Topics in Computer  
Science — Introduction to  
Data Communications."

**Labonté, Robert C.,  
G110**

Adjunct Professor,  
Electrical Engineering  
Department, Worcester  
Polytechnic Institute.

**Maybury, Mark T.,  
G110**

Invited Lecturer, "Plan-  
ning Multisentential  
English Text," The Human  
Computer Interface  
Laboratory, Queen Mary  
and Westfield College,  
University of London,  
England, 17 December  
1990; Invited Lecturer,  
"Planning Multisentential  
English Text," The Human  
Computer Interface  
Laboratory, Cambridge  
University Computer  
Laboratory, England, 18  
December 1990.

**Mikelskas, Robert A.,  
G140**

Lecturer, Johns Hopkins  
University Graduate  
School of Engineering,  
teaching Computer  
Science since 1973.

**Moser, Philip J., G140**

Adjunct Assistant Profes-  
sor, Catholic University of  
America Department of  
Electrical Engineering,  
Graduate level courses in  
signal processing, and  
electromagnetic scattering  
since 1985.

**Mulvehill, Alice M.,  
G110**

Invited Lecturer, "Knowl-  
edge Engineering,"  
University of Central  
Florida, Florida, 21  
February 1990 and 7  
November 1990.

**Murphy, Alexander B.,  
G110**

Guest Lecturer at Harvard  
University.

**Nadel, Mark E., G110**

Lecturer, Department of  
Computer Science, Boston  
College.

1990  
*Summary of  
Professional  
Activities*

**Teaching  
Appointments**

**Nieparent, Richard J., G140**  
Lecturer, Johns Hopkins University Whiting School of Engineering since 1979, teaching graduate courses in Data Communications Networks, Computer Network Architectures and Protocols, and Local Area Networks; Member of the Computer Science Department Program Committee of the Continuing Professional Programs Division of the Whiting School of Engineering since 1986; responsible for the communications networks concentration for the masters degree program in computer science.

**Piazza, Richard L., G110**  
Instructor, Computer Science, Metropolitan College, Boston University.

**Thibodeau, Gregg J., G110**  
Taught: "Network Design," Boston University Metropolitan College, Masters Program, Boston, Massachusetts.

**Vilain, Marc B., G110**  
Invited Lecturer, "Knowledge Representation for Case-Based Classification," Bolt Beranek & Newman Artificial Intelligence Seminar Series, Cambridge, Massachusetts, 29 May 1990.

**Warren, James, G140**  
Instructor in the Mathematics and Computer Science Department at Hillsborough Community College in Tampa, Florida, undergraduate-level courses on Introduction to Computer Science, College Algebra, and General Mathematics during the spring and fall terms of 1990.

**Wu, Alan C., G110**  
Adjunct Faculty, Boston University, Graduate School, Computer Science Department, "Data Communications"; Adjunct Faculty, Northeastern University, State-of-the-Art Engineering School, Electrical Engineering Department, "Local Area Networks"; Adjunct Faculty, University of Lowell, Graduate School, Electrical Engineering Department, "Local Area Networks."

**York, Louis A., G030**  
Instructor, Northeastern University; Instructor, SUNY, Brockport.



1990 **Fellows**  
*Summary of  
Professional  
Activities*

**James H. Babcock, G140**  
Institute of Electrical and  
Electronics Engineers  
*Fellow*



*The Electronic Dissemination System (EDS) was developed for the intelligence community as a special project of the Intelligence and CINC Support Systems Division (G140). Features of the EDS demonstration system include a simplified user interface (no keyboard), very high quality rendering of text and graphics, retrieval of video segments, and system security through fingerprint authentication*

MITRE annually selects a small number of programs for special recognition; we granted program awards to about 150 Bedford personnel in 1990, many of whom are members of the Center for Intelligence and Special Programs.

*Program Accomplishment Awards* were given for participation in the Sentinel Bright I program.

*Program Achievement Awards* were given for participation in the Joint Tactical Information Distribution System (JTIDS), Milstar Radome Engineering, and the North Warning System.

**Brusil, Paul J., G110**  
Selected as Distinguished International Expert by the Second International Symposium on Integrated Network Management.

**Claypool, Sharon A., Hamisevicz, Nicholas T., Reho, Marjorie E., G140**  
Received a letter of appreciation from the Jet Propulsion Laboratory and the Joint Tactical Fusion Program Office for their support to the development of a Tactical Simulation (TACSIM) operational scenario for use in testing the All Source Analysis System.

**Haydu, Virginia, Janshego, Stephen W., G110**  
Outstanding Contribution Award for the "AFLC Local Area Network (LAN) Maintenance and Support Source Selection Evaluation Team," 6 April 1990.

**Maciorowski, Susan M., G030**  
Selected by the President's Commission on Executive Exchange (PCEE) to serve as Presidential Exchange Executive for FY90, assigned as Special Assistant to the Director of Operations for the Information Management and Technology (IMTEC) Division of the U.S. General Accounting Office (GAO).

**Roberts, Barbara H., G110**  
Elected to *Who's Who of American Women '91*.

**Silverman, Robert D., G110, Stuart, Sidney, Former MITRE Employee**  
1989 MITRE Best Papers Award (received in 1990) for "A Distributed Batching System for Parallel Processing."

**States, Michael C., G140**  
Honored at a CIA award ceremony held in Langley, Virginia, on December 11, 1990. Received the CIA's Intelligence Medal of Merit for "the performance of especially meritorious service or for an act or achievement conspicuously above normal duties." Michael worked in the CIA's office of SIGINT Operations before joining MITRE in April 1990.

1990 **Professional**  
*Summary of Societies*  
*Professional*  
*Activities*

Our people belong to many professional societies, as shown in the list that begins on the following page. At the right is a list of professional societies that represent the greatest membership within the Center for Intelligence and Special Programs.

|   |     |
|---|-----|
| Institute of Electrical and Electronics Engineers       | 151 |
| Association for Computing Machinery                     | 74  |
| Armed Forces Communications and Electronics Association | 58  |
| Association of Old Crows                                | 34  |
| Air Force Association                                   | 15  |
| Boston Computer Society                                 | 11  |
| MITRE Technical Women's Group                           | 11  |
| American Radio Relay League                             | 10  |

|   |   |   |
|---|---|---|
| Air Force Association                               | Applied Imagery Pattern Recognition                     | Special Interest Group on Operating Systems           |
| Aircraft Owners and Pilots Association              | Armed Forces Communications and Electronics Association | Special Interest Group on OPS                         |
| American Association for Artificial Intelligence    | Army Association  | Special Interest Group on Programming Languages       |
| American Association for the Advancement of Science | Association for Automated Reasoning                     | Special Interest Group on Software Engineering        |
| American Astronomical Society                       | Association for Computational Linguistics               | Special Interest Group on SAC                         |
| American Business Women's Association               | Association for Computing Machinery                     | Special Interest Group on SOFT                        |
| American Defense Preparedness Association           | Special Interest Group on Ada                           | Association for Information Management                |
| American Geophysical Union                          | Special Interest Group on ART                           | Association for Symbolic Logic                        |
| American Institute for Industrial Engineers         | Special Interest Group on COMM                          | Association for Unmanned Vehicle Systems              |
| American Institute of Aeronautics and Astronautics  | Special Interest Group on Computer Architecture         | Association for Women in Science                      |
| American Institute of Physics                       | Special Interest Group on Computer Graphics             | Association of Former Intelligence Officers           |
| American Management Association                     | Special Interest Group on Computer Human Interaction    | Association of Military Surgeons of the U.S.          |
| American Mathematical Society                       | Special Interest Group on Documentation                 | Association of Old Crows                              |
| American Physical Society                           | Special Interest Group on Graphics                      | Association of the United States Army                 |
| American Psychological Association                  | Special Interest Group on Information Retrieval         | Boston Computer Society                               |
| American Radio Relay League                         | Special Interest Group on MOD                           | British Society for the History of Science (U.K.)     |
| American Society for Non-Destructive Testing        | Special Interest Group on National Organization         | Cognitive Science Society                             |
| American Society for Testing Methods                | Special Interest Group on Office Information Systems    | Cornell Society of Professional Engineers             |
| American Society of Clinical Pathologists           |   | Digital Equipment Corporation User Society            |
| American Society of Mechanical Engineers            |   | European Association for Theoretical Computer Science |
| Apple Programmers and Developers Association        |   |   |

1990  
Summary of  
Professional  
Activities

**Professional  
Societies**

|   |   |  |
|---|---|--|
| History of Science Society                        | Reliability Society                                 | Optical Society of America                         |
| Human Factors Society                             | Software Engineering Society                        | Pritsker Users Group                               |
| Information Systems Security Association          | Special Interest Group on Security and Privacy      | Quality Assurance Institute                        |
| Institute of Electrical and Electronics Engineers | Institution of Electrical Engineers (U.K.)          | Quarter Deck                                       |
| Acoustics, Speech and Signal Processing Society   | Institute of Management Sciences                    | Reserve Officers' Association                      |
| Aerospace and Electronic Systems Society          | Institute of Navigation                             | Security Affairs Support Association               |
| Antennas and Propagation Society                  | International Federation for Information Processing | Society for Competitor Intelligence Professionals  |
| Biomedical Society                                | International Laser Communications Society          | Society for Computer Simulation                    |
| Communications Society                            | International Test and Evaluation Association       | Society for Information Display                    |
| Computer Society                                  | Internet Activities Board                           | Society of American Military Engineers             |
| Control Systems Society                           | Laser Institute of America                          | Society of Automotive Engineers                    |
| Electromagnetic Compatibility Society             | Mathematical Association of America                 | Society of Industrial and Applied Mathematicians   |
| Engineering Management Society                    | Mensa   | Society of Photo-Optical Instrumentation Engineers |
| Geoscience and Remote Sensing Society             | Military Operations Research Society                | Society of Physics Students                        |
| Information Theory Society                        | MITRE-Bedford Amateur Radio Club                    | Society of Women Engineers                         |
| Instrumentation and Measurement Society           | MITRE Technical Women's Group                       | Sybase Northeast Kingdom Users Society             |
| Lasers and Electro-Optics Society                 | National Association for Female Executives          | Sybase Regional Users Group (Mass.)                |
| Lightwave Technology Society                      | National Computer Graphics Association              | The Computer Museum                                |
| Microwave Theory and Techniques Group             | National Military Intelligence Association          | United States Institute for Theatre Technology     |
| Nuclear and Plasma Science Society                | National Society of Black Engineers                 | United States Naval Institute                      |
| Quantum Electronics and Applications Society      | National Society of Professional Engineers          |  |
|   | Operations Research Society of America              |  |

1990  
Summary of  
Professional  
Activities

**Honorary  
Societies**

During 1990 our people were members of many honorary societies, which are listed below. The honorary societies listed at right represent the greatest membership within the Center for Intelligence and Special Programs.

|               |    |
|---------------|----|
| Eta Kappa Nu  | 30 |
| Tau Beta Pi   | 28 |
| Phi Kappa Phi | 15 |

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|                     |                          |
|---------------------|--------------------------|
| Alpha Lambda Delta  | Psi Chi National Honor   |
| Arnold Air Society  | Society                  |
| Beta Kappa Chi      | Sigma Beta Tau           |
| Delta Epsilon Sigma | Sigma Gamma Tau          |
| Epsilon Delta Pi    | Sigma Pi Sigma           |
| Eta Kappa Nu        | Sigma Tau                |
| Omega Rho           | Sigma Xi                 |
| Omicron Delta Kappa | Tau Alpha Pi Association |
| Phi Beta Kappa      | Tau Beta Pi              |
| Phi Delta Kappa     |                          |
| Phi Eta Sigma       |                          |
| Phi Kappa Phi       |                          |
| Phi Sigma Tau       |                          |
| Pi Alpha Alpha      |                          |
| Pi Mu Epsilon       |                          |
| Pi Tau Sigma        |                          |

We have attempted to report all pertinent staff activities for 1990. We apologize for any inadvertent errors or omissions.

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long-standing commitment to equal opportunity  
and affirmative action.

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Typesetter:  
Joanne F. Richardson