

**Jean A. Mayo**

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EDUCATION

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1997	Ph.D. Computer Science	College of William and Mary, Va.
1994	M.S. Computer Science	College of William and Mary, Va.
1991	B.S. Physics	Longwood College, Va.
1985	Bachelor of Mechanical Engineering	Georgia Institute of Technology, Ga.

EMPLOYMENT

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Sep 2003 - present	Michigan Technological University	Associate Professor
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Sep 1997 - 2003	Michigan Technological University	Assistant Professor
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May 1994 - July 1997	College of William and Mary	
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- *Helped install and administrate heterogeneous network (approx. 100 systems)*
- *Developed software (Perl,C,Tcl/TK) to automate account administration across departments*

Jan 1994 - May 1994	College of William and Mary	
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- *Taught CSCI 131 Concepts in Computer Science and associated laboratory*

May 1993 - Dec 1994	Institute for Computer Applications in Science and Engineering	
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- *Investigated application of Fortran 90 to computational fluid dynamic codes*

Sep 1985 - Aug 1992	Newport News Shipbuilding	Senior Engineer
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- *Developed models and coded real time simulations for various ship systems, including depth control and control surface actuation systems*
- *Developed control algorithm for hydraulic turbine pump control system and supervised development of software for dual redundant microprocessor-based controller*

## PUBLICATIONS

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James W. Walker, Man Wang, Steven Carr, Jean Mayo, and Ching-Kuang Shene. Teaching Integer Security Using Simple Visualizations. In *Proceedings of the 2019 ACM Conference on Innovation and Technology in Computer Science Education*, ITiCSE '19, pages 513–519, Aberdeen, Scotland, UK, 2019

Wassnaa Al-Mawee, Paul J. Bonamy, Steve Carr, and Jean Mayo. Maia: A Language for Mandatory Integrity Controls of Structured Data. In *Proceedings of the 5th International Conference on Information Systems Security and Privacy*, ICISSP '19, pages 257–265, Prague, Czech Republic, 2019

Man Wang, Jean Mayo, Ching-Kuang Shene, Steve Carr, and Chaoli Wang. UNIXvisual: A Visualization Tool for Teaching UNIX Permissions. In *Proceedings of the 2017 ACM Conference on Innovation and Technology in Computer Science Education*, ITiCSE '17, pages 194–199, Bologna, Italy, 2017

Jun Ma, Jun Tao, Jean Mayo, Ching-Kuang Shene, Melissa S. Keranen, and Chaoli Wang. AESvisual: A Visualization Tool for the AES Cipher. In *Proceedings of the 2016 ACM Conference on Innovation and Technology in Computer Science Education*, ITiCSE '16, pages 230–235, Arequipa, Peru, 2016

Paul Bonamy, Steve Carr, and Jean Mayo. Toward a mandatory integrity protection system. In *Proceedings of the 31st International Conference on Computers and Their Applications*, CATA '16, pages 115–122, Las Vegas, NV, 2016

Can Li, Jun Ma, Jun Tao, Jean Mayo, Ching-Kuang Shene, Melissa S. Keranen, and Chaoli Wang. VIGvisual: A Visualization Tool for the Vigenère Cipher. In *Proceedings of the 2015 ACM Conference on Innovation and Technology in Computer Science Education*, ITiCSE '15, pages 129–134, Vilnius, Lithuania, 2015

Man Wang, Jean Mayo, Ching-Kuang Shene, Thomas Lake, Steve Carr, and Chaoli Wang. RBACvisual: A Visualization Tool for Teaching Access Control using Role-based Access Control. In *Proceedings of the 2015 ACM Conference on Innovation and Technology in Computer Science Education*, ITiCSE '15, pages 141–146, Vilnius, Lithuania, 2015

Ali Ebneenasir and Jean Mayo. Fault-Tolerant Parallel and Distributed Computing for Software Engineering Undergraduates. In *2015 IEEE International Parallel and Distributed Processing Symposium Workshop*, IPDPS '15, pages 788–794, Hyderabad, India, 2015

Man Wang, Steve Carr, Jean Mayo, Ching-Kuang Shene, and Chaoli Wang. MLSvisual: A Visualization Tool for Teaching Access Control using Multi-level Security. In *Proceedings of the 2014 ACM Conference on Innovation and Technology in Computer Science Education*, ITiCSE '14, pages 93–98, Uppsala, Sweden, 2014

Jun Tao, Jun Ma, Melissa S. Keranen, Jean Mayo, Ching-Kuang Shene, and Chaoli Wang. RSAvisual: A Visualization Tool for the RSA Cipher. In *Proceedings of the 45th ACM Technical Symposium on Computer Science Education*, SIGCSE '14, pages 635–640, Atlanta, GA, USA, 2014

Lihui Hu, Jean Mayo, and Charles Wallace. An Empirical Study of Three Access Control Systems. In *Proceedings of the 6th International Conference on Security of Information and Networks*, SIN '13, pages 287–291, Aksaray, Turkey, 2013

- Jun Tao, Jun Ma, Melissa S. Keranen, Jean Mayo, and Ching-Kuang Shene. ECvisual: A Visualization Tool for Elliptic Curve Based Ciphers. In *Proceedings of the 43rd ACM Technical Symposium on Computer Science Education, SIGCSE '12*, pages 571–576, Raleigh, NC, USA, 2012
- Xinli Wang, Jean Mayo, and Guy C. Hembroff. Detection of a weak conjunction of unstable predicates in dynamic systems. In *Proceedings of the 16th IEEE International Conference on Parallel and Distributed Systems, ICPADS '10*, pages 338–346, Shanghai, China, 2010
- Xinli Wang, Jean Mayo, Guy C. Hembroff, and Chunming Gao. Detection of Conjunctive Stable Predicates in Dynamic Systems. In *Proceedings of the 15th IEEE International Conference on Parallel and Distributed Systems, ICPADS '09*, pages 828–835, Shenzhen, China, 2009
- Neelesh Bansod, Ashish Malgi, Byung Kyu Choi, and Jean Mayo. MuON: Epidemic Based Mutual Anonymity in Unstructured P2P Networks. *Computer Networks*, 52(5):915–934, 2008
- Xinli Wang, Jean Mayo, Wei Gao, and James Slusser. An Efficient Implementation of Vector Clocks in Dynamic Systems. In *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications & Conference on Real-Time Computing Systems and Applications, PDPTA '06*, pages 593–599, Las Vegas, Nevada, 2006
- Donald Darling, Jean Mayo, and Xinli Wang. Stable Predicate Detection in Dynamic Systems. In J.H. Anderson and G. Principe, editors, *Principles of Distributed Systems. OPODIS '05. Lecture Notes in Computer Science*, volume 3974, pages 161–175. Springer, 2006
- Neelesh Bansod, Ashish Malgi, Byung Kyu Choi, and Jean Mayo. MuON: Epidemic Based Mutual Anonymity. In *Proceedings of the 13th IEEE International Conference on Network Protocols, ICNP '05*, pages 99–109, Boston, MA, USA, 2005
- Xinli Wang and Jean Mayo. A Dynamic Priority Based Algorithm for Distributed Deadlock Detection and Resolution. In *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications, PDPTA '04*, pages 599–605, Las Vegas, Nevada, 2004
- Shilpa Bansod and Jean Mayo. A Distributed Algorithm For Unstable Global Predicate Evaluation With Approximately Synchronized Clocks. *Stud. Inform. Univ.*, 3(2):151–168, 2004
- Jeffrey Dobbelaere, Phil Kearns, and Jean Mayo. The Advantages of Real Time in TORA. In *Proceedings of the 16th International Conference on Computer Applications in Industry and Engineering*, pages 225–229, Las Vegas, Nevada, USA, 2003
- Steve Carr, Changpeng Fang, Tim Jozwowski, Jean Mayo, and Ching-Kuang Shene. Concurrent Mentor: A Visualization System for Distributed Programming Education. In *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications, PDPTA '03*, pages 1676–1682, Las Vegas, Nevada, USA, 2003
- Steve Carr, Jean Mayo, and Ching-Kuang Shene. ThreadMentor: A Pedagogical Tool for Multithreaded Programming. *ACM Journal of Educational Resources in Computing*, 3(1):1, 2003
- James K. Huggins, Jean Mayo, and Charles Wallace. Teaching ASMs, Teaching with ASMs: Opportunities in Undergraduate Education. In *Abstract State Machines, Advances in Theory and Practice, 10th International Workshop, ASM 2003*, page 414, Taormina, Italy, 2003

Chunhua Zhao and Jean Mayo. A TCP/UDP Protocol Visualization Tool: Visual TCP/UDP Animator (VTA). In *In International Conference on Engineering Education (ICEE 2002)*, 2002

Steve Carr, Ping Chen, Tim Jozwowski, Jean Mayo, and Ching-Kuang Shene. Channels, Visualization, and Topology Editor. In *Proceedings of the 7th Annual SIGCSE Conference on Innovation and Technology in Computer Science Education*, ITiCSE '02, pages 106–110, Aarhus, Denmark, 2002

Steve Carr, Changpeng Fang, Tim Jozwowski, Jean Mayo, and Ching-Kuang Shene. A Communication Library to Support Concurrent Programming Courses. In *Proceedings of the 33rd SIGCSE Technical Symposium on Computer Science Education*, SIGCSE '02, pages 360–364, 2002

Jean Mayo and Phil Kearns. Two Protocols for the Detection of Stable Predicates. In *Proceedings of the Twelfth IASTED International Conference on Parallel and Distributed Computing*, pages 75–80, Las Vegas, NV, USA, 2000

Donald Darling and Jean Mayo. Stable Predicate Detection with Probabilistically Synchronized Clocks. In *Proceedings of the ISCA Thirteenth International Conference on Parallel and Distributed Computing Systems*, pages 574–569, Las Vegas, NV, USA, 2000

Jean Mayo and Phil Kearns. A Secure Networked Laboratory for Kernel Programming. In *Proceedings of the 6th Annual Conference on the Teaching of Computing and the 3rd Annual SIGCSE Conference on Innovation and Technology in Computer Science Education*, ITiCSE 1998, pages 175–177, Dublin City Univ., Ireland, 1998

Jean Mayo and Phil Kearns. Global Predicates in Rough Real Time. In *Proceedings of the Seventh IEEE Symposium on Parallel and Distributed Processing*, SPDP '95, pages 17–24, San Antonio, Texas, USA, 1995

Jean Mayo and Phil Kearns. Efficient Distributed Termination Detection with Roughly Synchronized Clocks. In *Proceedings of the Seventh IASTED/ISMM International Conference on Parallel and Distributed Computing and Systems*, pages 305–307, Washington, D.C., 1995

Jean Mayo and Phil Kearns. Distributed Termination Detection with Roughly Synchronized Clocks. *Inf. Process. Lett.*, 52(2):105–108, 1994

## WORKSHOPS AND POSTERS

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James W. Walker, Jean Mayo, Ching-Kuang Shene, and Steve Carr. Visualization for Secure Coding in C. In *Proceedings of the 2017 ACM Conference on Innovation and Technology in Computer Science Education*, ITiCSE '17, page 372, Bologna, Italy, 2017

Steve Carr and Jean Mayo. Workshop on Teaching Modern Models of Access Control Hands-on: Tutorial Presentation. *J. Comput. Sci. Coll.*, 32(1):35–36, October 2016

Man Wang, Jean Mayo, Ching-Kuang Shene, Steve Carr, and Chaoli Wang. UNIXvisual: A Visualization Tool for Teaching the UNIX Permission Model. In *Proceedings of the 2016 ACM Conference on Innovation and Technology in Computer Science Education*, ITiCSE '16, page 356, Arequipa, Peru, 2016

Steve Carr, Melissa S. Keranen, and Jean Mayo. Teaching Cryptography and Access Control Hands-On. In *Proceedings of the 46th ACM Technical Symposium on Computer Science Education, SIGCSE '15*, page 707, Kansas City, MO, USA, 2015

Jun Ma, Jun Tao, Melissa S. Keranen, Jean Mayo, Ching-Kuang Shene, and Chaoli Wang. SHAvisual: A Secure Hash Algorithm Visualization Tool. In *Proceedings of the 2014 ACM Conference on Innovation and Technology in Computer Science Education, ITiCSE '14*, page 338, Uppsala, Sweden, 2014

## SPONSORED PROJECTS

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- "Exploring Computer Science Research," \$30000, Google, PI with Dr. Laura Brown, Dr. Linda Ott and Leo Ureel
- "EDU:Collaborative: VACCS - Visualization and Analysis for C Code Security," NSF (DGE-1523017), \$130001, PI, with Dr. Ching-Kuang Shene
- "Accessible Access Control," NSF (DUE-4862355), \$199164, 2013-2015, PI, with Dr. Steven Carr and Dr. Ching-Kuang Shene
- "Fault-Tolerant Parallel and Distributed Computing for Software Engineering Undergraduates," NSF and IEEE Computer Society Technical Committee on Parallel Processing (TCPP), NSF/TCPP CDER Center Early Adopter Awards, \$2000, 2014, with Dr. Ali Ebneenasir (PI)
- "The Design of Course Materials and Visualization Systems for Modern Cryptography," NSF (DUE-4862355), \$199964, 2012-2014, with Dr. Melissa Keranen and Dr. Ching-Kuang Shene (PI)
- "Concurrent Computing in an Upper-Level Computer Science Curriculum," National Science Foundation (CCLI-EMD 9952509), \$299865, 2000 – 2002, with Dr. Steven Carr (PI) and Dr. C.K. Shene
- "CAREER: Development and Control of Distributed Computations in a Global Time Frame," National Science Foundation (CCR-9984682), Operating Systems and Compilers, \$204957, 2000–2004

## TEACHING AND STUDENT SUPERVISION

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### Doctor of Philosophy

- Paul Bonamy, Dissertation: *Maia and Mandos: Tools for Integrity Protection on Arbitrary Files* (2016), Current position: Clinical Assistant Professor, Washington State University
- Lihui Hu, Dissertation: *A Firewall Model of File System Security* (2014), Current position: Dovel Technologies
- Man Wang, Dissertation: *Accessible Access Control: A Visualization System for Access Control Policy Management* (2019), Current Position: Facebook
- Xinli Wang, Dissertation: *Detection of Global Predicates in Dynamic Systems* (2005), Current position: Associate Professor, Grand Valley State University

**Graduated M.S. (Project or Thesis): 21 students**

**Undergraduate Research Projects Supervised: 3**

### **Teaching Accomplishments**

- Member of committee to develop software security track for BS in Cybersecurity
- Member of committee to develop proposal for MS in Cybersecurity
- Introduced a new graduate course: CS 5471 Advanced Topics in Computer Security (now CS 5472)
- Introduced a new graduate course: CS 5441 Distributed Systems
- Introduced a new graduate course: CS 5411 Operating Systems
- Introduced cybersecurity into the undergraduate curriculum in 2003 through design and development of a new course: CS 4471 Computer Security
- Designed and developed new undergraduate course: CS 3411 Systems Programming, now a required course
- Developed curriculum for BS in Computer Systems Science, now an option within BS in CS
- Member of three person committee to develop proposal for CS PhD program

**Courses taught:** CS 2311 Discrete Mathematics, CS 3311 Introduction to Formal Models of Computation, CS 3411 Systems Programming, CS 4411 Operating Systems, CS 4461 Computer Networks, CS 4471 Computer Security, CS 5411 Advanced Operating Systems, CS 5441 Distributed Systems, CS 5471 Computer Security, CS 5472 Advanced Topics in Computer Security

### **PROFESSIONAL SERVICE**

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Program Committee:

- International Conference on Massively Parallel Computing Systems
- SIGCSE Annual Technical Conference
- Tenth Colloquium for Information Systems Security Education

Reviewer:

- ACM Symposium on Applied Computing
- IASTED International Conference on Parallel and Distributed Computing
- IEEE International Parallel and Distributed Processing Symposium
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Parallel and Distributed Systems
- International Conference on Massively Parallel Computing Systems

- International Symposium on Distributed Computing (DISC)
- Journal of Parallel and Distributed Computing
- SIGCSE Annual Technical Conference

## DEPARTMENT SERVICE

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- Director of Graduate Studies (2003-2006, 2010-2012, 2017-present) - *Graduate Director oversees the graduate program in its entirety. This includes advising all graduate students without a primary thesis, project or dissertation advisor, reviewing all graduate program applications, attending GFC meetings, an annual assessment of all department graduate programs, and supervision of the PhD student annual review.*
- Graduate Committee (1999-2006, 2007-2012, 2017-present) - *Graduate committee reviews all applications to departmental graduate programs, reviews all PhD students annually, and performs an annual assessment of all programs.*
- Chairman, Department TPR Committee 2012
- Member of Department or College Tenure, Promotion and Reappointment Committees annually since tenure
- Chairman, Department Chair Search Committee 2013
- Department Chairman, Faculty or Lecturer Search Committees (*approximately six*)
- Member of three person committee to manage conversion from quarters to semesters

## DEVELOPED SOFTWARE

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### Actively Supported:

- Access Control Visualization ([acv.cs.mtu.edu](http://acv.cs.mtu.edu))
- Cryptography Visualization ([cs.mtu.edu/~shene/NSF-4/index.html](http://cs.mtu.edu/~shene/NSF-4/index.html))

### Available for Unsupported Download:

- Concurrent Mentor (CM) ([cs.mtu.edu/ConcurrentMentor/](http://cs.mtu.edu/ConcurrentMentor/))
- Visual TCP/UDP Animator (VTA) ([cs.mtu.edu/vta/](http://cs.mtu.edu/vta/))

## PROFESSIONAL MEMBERSHIPS

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- Association for Computing Machinery
- IEEE Computer Society
- USENIX