

MARK W. BAILEY

Department of Computer Science
Hamilton College
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CURRICULUM VITÆ

EDUCATION

Doctor of Philosophy, Computer Science, University of Virginia, Charlottesville, May 2000.

Master of Computer Science, University of Virginia, Charlottesville, August 1990.

Bachelor of Science, Computer Science, University of Massachusetts, Amherst, May 1988.

PROFESSIONAL EXPERIENCE

Professor of Computer Science (July 2012–present). Hamilton College, Clinton, NY.

Associate Professor of Computer Science (July 2005–June 2012). Hamilton College, Clinton, NY.

Visiting Professor (July 2007–June 2008). Department of Computer Science, University of Virginia, Charlottesville, VA.

Consultant (December 2004–July 2007). Assured Information Security. Rome, NY.

Assistant Professor of Computer Science (April 2000–June 2005). Hamilton College, Clinton, NY.

Outside Consultant (March 2001–September 2004). Information Directorate, Air Force Research Lab, Rome, NY.

Visiting Assistant Professor (June 2001–July 2002). Department of Computer Science, Florida State University, Tallahassee, FL.

Instructor of Computer Science (July 1997–April 2000). Hamilton College, Clinton, NY.

Instructor (Spring 1995). Department of Computer Science, University of Virginia, Charlottesville, VA.

AWARDS AND HONORS

Class of 1963 Faculty Fellowship. Hamilton College. Summer 2015.

Richardson Award for Faculty Innovation. Hamilton College. Summer 2006.

Faculty Research Fellowship. National Research Council/United States Air Force Office of Scientific Research, Summer 2003.

Sigma Xi Scientific Research Society.

Tau Beta Pi Engineering Honor Society.

GRANT AND GIFT AWARDS

Stimulating Wide Interest in Computer Science using Computer Security. With University of Virginia. National Science Foundation (DUE). \$149,976 (\$49,976 to Hamilton College). August 2009–July 2011.

Using Phoenix in Computer Security Curricula: Phase II. Microsoft Research, External Research & Programs. \$100,000 (\$25,000 to Hamilton College). Awarded December 2007.

Travel Grants for Faculty at Minority/Female Institutions to Attend FCRC'07. National Science Foundation (CISE). \$72,066. September 2006–August 2008.

Using Phoenix in Computer Security Curricula. Microsoft Research, External Research & Programs. \$147,490 (\$30,600 to Hamilton College). Awarded September 2006.

Branch Elimination by Condition Merging. With Florida State University. National Science Foundation (CISE). \$250,000 (\$70,000 to Hamilton College). September 2002–August 2005.

Travel and support grant for the NATO Advanced Study Institute on Fundamentals and Standards in Hardware Description Languages, April 1993.

COLLEGE SERVICE

Chair, Department of Computer Science (2011–2014, 2015–2018)

Committee on Budget and Finance (2015–2016)

Vice President, Hamilton College Chapter of Sigma Xi (2014–2016).

Information Security Review Board (2012–present)

High Performance Computing Advisory Committee (2008–present)

Chair, Science chairs (2013–2014).

Parliamentarian (2008–2011)

Committee on Student Activities (2005–2009).

Committee on Information Technology (2003–2006), Chair (2003–2005).

Alumni Council (2002–2005).

Appeals Board (2002–2005), Chair (Spring 2004–Spring 2005).

Sigma Xi Executive Committee (2003–2005).

Honor Court (1999–2002).

Summer Research in the Sciences Committee (1997–2004).

Science Facilities Faculty Committee (1998–1999).

PROFESSIONAL SERVICE

Conference Chair, *2016 Consortium of Computing Sciences in Colleges Northeastern Conference.*

Review Committee for the *Barry Goldwater Scholarship*, 2014–present.

Organizing Committee for the *2015 New York Celebration of Women in Computing Conference.*

Papers co-chair, *Consortium of Computing Sciences in Colleges Northeastern Conference*, 2011–2014.

Invited participant, *Cybersecurity Hard Problems Workshop.* Cyber Research Institute, Rome NY. March 2014, August 2014, June 2015.

External reviewer, Department of Computer Science, Siena College, Loudonville, NY. April, 2013.

Editor, *ACM SIGPLAN Notices* (a monthly publication of the Association for Computing Machinery's Special Interest Group on Programming Languages) and member of the ACM SIGPLAN Executive Committee (September 2005–April 2011).

External reviewer, Department of Computer Science, State University of New York at Oswego, Oswego, NY, May, 2009.

Organizing Committee (Faculty Support Travel Chair) for the *2007 Federated Computing Research Conference.*

Organizing Committee and Student Poster Session Chair for the *ACM SIGPLAN/SIGBED 2004 Conference on Languages, Compilers, and Tools for Embedded Systems.*

Organizing Committee and Student Research Forum Cochair for the *2001 ACM SIGPLAN Conference on Programming Language Design and Implementation.*

Reader, College Board Advanced Placement Exam in Computer Science, 2003, 2009, 2013–2015.

Review panel for the 2014 STEM-C Partnerships: Computing Education for the 21st Century program, Division of Computer & Information Science & Engineering, National Science Foundation.

Review panel for the 2014 Improving Undergraduate STEM Education program, Division of Undergraduate Education, National Science Foundation.

Review panel for the 2013 Storage Systems, Computer Systems Research program, Division of Computer & Information Science & Engineering, National Science Foundation.

Review panel for the 2012 Federal Cyber Service: Scholarship for Service program, Division of Undergraduate Education, National Science Foundation.

Review panel for the 2012 Transforming Undergraduate Education in Science, Technology, Engineering, and Mathematics, Division of Undergraduate Education, National Science Foundation.

Review panel for the 2012 Federal Cyber Service: Scholarship for Service program, Division of Undergraduate Education, National Science Foundation.

Review panel for the 2009 Computer Network Systems, Computer Systems Research program, Division of Computer & Information Science & Engineering, National Science Foundation.

Review panel for the 2009 Course, Curriculum, and Laboratory Improvement program, Phase I, Division of Undergraduate Education, National Science Foundation.

Review panel for the 2008 Cyber Trust Exploratory Research program, Division of Computer & Information Science & Engineering, National Science Foundation.

Review panel for the 2008 Federal Cyber Service: Scholarship for Service program, Division of Undergraduate Education, National Science Foundation.

Chair, review panel for the 2003 Course, Curriculum, and Laboratory Improvement program, EMD/ND track, Division of Undergraduate Education, National Science Foundation.

Review panel for the 2002 Course, Curriculum, and Laboratory Improvement program, A&I track, Division of Undergraduate Education, National Science Foundation.

Review panel for the 2001 Compilers and Operating Systems program, Division of Computer & Information Science & Engineering, National Science Foundation.

Reviewer, *Consortium of Computing Sciences in Colleges Northeastern Conference*, 2005, 2010, 2013.

Reviewer, *ACM SIGCSE Technical Symposium on Computer Science Education*, 2003, 2006–2014.

Reviewer, GEAR: Research Experiences program, South Carolina Experimental Program to Stimulate Competitive Research and Institutional Development Awards, 2013.

Reviewer, *ACM SIGPLAN Conference on Programming Language Design and Implementation*, 1997, 2001, 2005.

Reviewer, *2005 ACM SIGPLAN Conference on Principles of Programming Languages*.

Reviewer, *ACM SIGPLAN Joint Conference on Languages, Compilers and Tools for Embedded Systems / Software and Compilers for Embedded Systems*, 2002.

Reviewer, *IEEE Transactions on Systems, Man, and Cybernetics special issue in Secure Knowledge Management*.

Reviewer, *ACM Inroads*.

Reviewer, *IEEE Computer*.

Reviewer, *IEEE Transactions on Software Engineering*.

Reviewer, *ACM Transactions on Programming Languages and Systems*.

Reviewer for Academic Press, Jones and Bartlett.

COMMUNITY SERVICE

Board of Directors for the Clinton Early Learning Center (2004–2006, Secretary 2004–2005, Vice President, Treasurer 2005–2006, President 2006).

PROFESSIONAL AFFILIATIONS

Association for Computing Machinery

Member of Special Interest Groups on Computer Science Education.

PUBLICATIONS

- Mark W. Bailey, Laurel A. Emurian, Spencer E. Gulbranson, Mary E. Learner, and Leah R. Wolf, *Secrets, Lies, and Digital Threats Course Materials*, Microsoft Academic Alliance, 2012.
- Laurel A. Emurian and Mark Bailey, *Time in Confidence Intervals*, Proceedings of the Fifteenth Annual Computing Science in College Northeastern Conference, April 2010.
- Mark W. Bailey, Kim Bruce, Kathleen Fisher, Robert Harper, and Stuart Reges, *Report of the 2008 SIGPLAN programming languages curriculum workshop*, SIGCSE '09: Proceedings of the 40th SIGCSE Technical Symposium on Computer Science Education (New York, NY, USA), ACM, March 2009, pp. 132–133.
- Eric Allen, Mark W. Bailey, Ras Bodik, Kim Bruce, Kathleen Fisher, Stephen Freund, Robert Harper, Chandra Krintz, Shriram Krishnamurthi, Jim Larus, Doug Lea, Gary Leavens, Lori Pollock, Stuart Reges, Martin Rinard, Mark Sheldon, Franklyn Turbak, and Mitchell Wand, *2008 SIGPLAN programming language curriculum workshop: Discussion summaries and recommendations*, SIGPLAN Notices **43** (2008), no. 11, 6–29.
- Mark W. Bailey, *Injecting programming language concepts throughout the curriculum: An inclusive strategy*, Workshop Record of the 2008 SIGPLAN Workshop on Undergraduate Programming Language Curricula, May 2008, pp. 36–38.
- Mark W. Bailey, Clark L. Coleman, and Jack W. Davidson, *Defense against the dark arts*, SIGCSE '08: Proceedings of the 39th SIGCSE Technical Symposium on Computer Science Education (New York, NY, USA), ACM, March 2008, pp. 315–319.
- Prasad Kulkarni, Wankang Zhao, Stephen Hines, David Whalley, Xin Yuan, Robert van Engelen, Kyle Gallivan, Jason Hiser, Jack Davidson, Baosheng Cai, Mark Bailey, Hwashin Moon, Kyunghwan Cho, and Yunheung Paek, *VISTA: VPO interactive system for tuning applications*, ACM Transactions on Embedded Computing Systems **5** (2006), no. 4, 819–863.
- Michael Gruen and Mark Bailey, *A secure low-power approach for providing mobile encryption*, Proceedings of the Eleventh Annual Computing Science in College Northeastern Conference, April 2006, pp. 288–289.
- Erik Goulding, Michael Gruen, Aram Kudurshian, and Mark Bailey, *Bluetooth automatic data acquisition and synchronization software*, Proceedings of the Eleventh Annual Computing Sciences in Colleges Northeastern Conference, April 2006, pp. 289–290.
- Erik Goulding and Mark Bailey, *Processor cycle usage profiling on the SPARC*, Proceedings of the Tenth Annual Computing Sciences in Colleges Northeastern Conference, April 2005, pp. 150–151.
- Mark W. Bailey, *IRONCODE: Think-twice, code-once programming*, SIGCSE '05: Proceedings of the 36th SIGCSE Technical Symposium on Computer Science Education (New York, NY, USA), ACM, February 2005, pp. 181–185.

- William C. Krehling, David Whalley, Mark W. Bailey, Xin Yuan, Gang-Ryung Uh, and Robert van Engelen, *Branch elimination by condition merging*, *Software-Practice and Experience* **35** (2005), no. 1, 51–74.
- Mark W. Bailey and Kevin Kwiat, *Securing knowledge queries using code striping*, Workshop Record of the 2004 Workshop on Secure Knowledge Management, September 2004.
- Mark W. Bailey and Kevin Kwiat, *A task distribution model for protection of servers and tasks in a fault-tolerant distributed system*, United States Patent Application (patent pending), September 2004.
- Christopher R. LaRosa and Mark W. Bailey, *A docked-aware storage architecture for mobile computing*, CF '04: Proceedings of the 1st Conference on Computing Frontiers (New York, NY, USA), ACM, April 2004, pp. 255–262.
- Mark W. Bailey and Jack W. Davidson, *Automatic detection and diagnosis of faults in generated code for procedure calls*, *IEEE Transactions on Software Engineering* **29** (2003), no. 11, 1031–1042.
- William Krehling, David Whalley, Mark Bailey, Xin Yuan, Gang-Ryung Uh, and Robert van Engelen, *Branch elimination via multi-variable condition merging*, Proceedings of the 9th International Conference on Parallel and Distributed Computing, August 2003, pp. 261–270.
- Prasad Kulkarni, Wankang Zhao, Hwashin Moon, Kyunghwan Cho, David Whalley, Jack Davidson, Mark Bailey, Yunheung Paek, and Kyle Gallivan, *Finding effective optimization phase sequences*, LCTES '03: Proceedings of the 2003 ACM SIGPLAN Conference on Language, Compilers, and Tools for Embedded Systems (New York, NY, USA), ACM, June 2003, pp. 12–23.
- Wankang Zhao, Baosheng Cai, David Whalley, Mark W. Bailey, Robert van Engelen, Xin Yuan, Jason D. Hiser, Jack W. Davidson, Kyle Gallivan, and Douglas L. Jones, *VISTA: A system for interactive code improvement*, LCTES/SCOPES '02: Proceedings of the Joint Conference on Languages, Compilers and Tools for Embedded Systems (New York, NY, USA), ACM, June 2002, pp. 155–164.
- Mark W. Bailey and Nathan C. Weston, *Performance benefits of recursion removal in procedural languages*, Tech. Report TR-2001-2, Department of Computer Science, Hamilton College, Clinton, NY, USA, June 2001.
- Mark W. Bailey and Jack W. Davidson, *Target-sensitive construction of diagnostic programs for procedure calling sequence generators*, PLDI '96: Proceedings of the ACM SIGPLAN 1996 Conference on Programming Language Design and Implementation (New York, NY, USA), ACM, May 1996, pp. 249–257.
- Mark W. Bailey and Jack W. Davidson, *Reusable application-dependent machine descriptions*, Workshop Record of The Inaugural Workshop on Compiler Support for Systems Software, February 1996, pp. 77–85.
- Mark W. Bailey and Jack W. Davidson, *A formal model and specification language for procedure calling conventions*, POPL '95: Proceedings of the 22nd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (New York, NY, USA), ACM, January 1995, pp. 298–310.
- Michael J. Alexander, Mark W. Bailey, Bruce R. Childers, Jack W. Davidson, and Sanjay Jinturkar, *Memory bandwidth optimizations for wide-bus machines*, Proceedings of the Hawaii International Conference on System Sciences, January 1993, pp. 466–475.

Mark W. Bailey and Janalee O’Bagy, *FLECS: A tool for rapid prototyping of mechanisms in success/failure based languages*, Tech. Report CS-90-35, Department of Computer Science, University of Virginia, Charlottesville, VA, USA, July 1990.

RECENT COURSES TAUGHT

Academic Year	Fall Semester	Spring Semester
2015–16	CS 210: <i>Applied Theory</i> (22 [†]) CS 240: <i>Computer Organization</i> (26) CS 290: <i>Programming Challenges</i> (4)	CS 110: <i>Introduction to Computer Science</i> (N/A) CS 290: <i>Programming Challenges</i> (N/A) CS 320: <i>Computer Architecture</i> (N/A)
2013–14	CS 111: <i>Data Structures</i> (15) CS 240: <i>Computer Organization</i> (20) CS 290: <i>Programming Challenges</i> (12)	CS 111: <i>Data Structures</i> (26) CS 290: <i>Programming Challenges</i> (10) CS 320: <i>Computer Architecture</i> (12)
2012–13	CS 110: <i>Introduction to Computer Science</i> (16) CS 290: <i>Programming Challenges</i> (16) CS 310: <i>Compilers</i> (6)	CS 110: <i>Introduction to Computer Science</i> (26) CS 220: <i>Principles of Programming Languages</i> (17)
2011–12	CS 110: <i>Introduction to Computer Science</i> (12) CS 110: <i>Introduction to Computer Science</i> (17)	CS 220: <i>Principles of Programming Languages</i> (22) CS 290: <i>Programming Challenges</i> (5) CS 320: <i>Computer Architecture</i> (11)
2010–11	CS 104: <i>Secrets, Lies, and Digital Threats</i> (12) CS 110: <i>Introduction to Computer Science</i> (16) CS 110: <i>Introduction to Computer Science</i> (23)	CS 110: <i>Introduction to Computer Science</i> (19) CS 110: <i>Introduction to Computer Science</i> (18) CS 290: <i>Programming Challenges</i> (9) CS 307: <i>Special Topics in Hardware Synthesis</i> (2)

[†]Number of students enrolled.