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EDUCATION

Doctor of Philosophy in Computer Science, 2005

University of Massachusetts, Amherst, MA

Dissertation: *Software Design Guidance by Process-Scoped Inconsistency Management*

Advisor: Professor Leon J. Osterweil

Master of Computer Science, 1996

University of Virginia, Charlottesville, VA

Bachelor of Science in Computer Science, 1993

University of Virginia, Charlottesville, VA

TEACHING

Associate Professor, Fall 2009 – present, **Assistant Professor**, Winter 2005 – Fall 2009, **Instructor**, Fall 2003 – Fall 2004

Union College Department of Computer Science

Computer Science Courses

CSc 150: **Data Structures with Laboratory** [W08, W09, W10, W11, W12, S12]

CSc 250: **Design and Analysis of Algorithms** [F04, W05, S06, F06, F07, S08, S09, S11, S12]

CSc 260: **Large-Scale Software Development** [W05, W06, W08, W09, W10, W11, W12]

CSc 280: **User Interfaces** [F12]

CSc 335: **Operating Systems** [S04, S05, S11]

CSc 360: **Software Engineering** [S05, S06, S09, F11]

CSc 497: **Junior Capstone Design Seminar** [S08]

General Education Courses

FYP 100: **Technology: Celebration and Warning** [F05, W06]

SRS 200: **Design as if People Mattered** [F06, F07, F08, F10, F11]

Courses No Longer Offered

CSc 136: **Advanced Programming Techniques** [F03, W04]

CSc 233: **Advanced Topics in Software Engineering** [S04]

Teaching Associate, Spring 2001 – Fall 2001

University of Massachusetts Department of Computer Science

CMPSCI 320: **Software Engineering** [S01, F01]

Instructor, Winter 1999

University of Massachusetts Division of Continuing Education

CMPSCI 197C: **Programming in C++** [W99]

STUDENT PROJECTS SUPERVISED

Christopher Leveille, Summer 2012

Wizard of Oz Robotic Face Control

Erik Skorina, Summer 2012

Torso and Other Additions for Union's Advanced Educational Robot
with Nick Webb and Shane Cotter

Adam Burns, 2012

Senior Project: *Mobile Intoxication Assessment Tool*

Stephen Santise, 2012

Senior Project: *Creating a Digital Fingerprint From Web Browsing History Alone*

Daniel Mendelsohn, 2011

Senior Project: *Pedagogical Tool for Usability Science*
with Chris Fernandes and Jim Hedrick

Daniel Mendelsohn, Summer 2010

Implementing a universal electronic appliance interface for usability testing
with Chris Fernandes and Jim Hedrick

Ramsey Steiner, Summer 2010

Visualization of Cascading Selective Undo
with Chris Fernandes

Carley Jacobson, Summer 2009, Spring 2010

Location Aware Undo in a Drawing Program
with Chris Fernandes

Steven Kassof, 2010

Senior Project: *Producing Better Output From Finite State Verification Systems*

Zdenek Papez, Summer 2009

Developed simulation of river development
with George Shaw

Owen Heneghan, 2009

Senior Project: *Wii Punch: Tracking and Gesture Recognition for 3D Game Environments*

Nickolas Potvin, 2009

Senior Project: *A Pedagogical Tool for Usability Science*
with Chris Fernandes and Jim Hedrick

Eric Rizzi, 2009

Senior Project: *Network Optimization Through Packet Peaking*

Maria Tobin, 2009

Senior Project: *Improving Photo Retrieval in a User's Browser History*
with Chris Fernandes

Tomas Lev, Summer 2008

Task Model Inference to Support Cascading Selective Undo
with Chris Fernandes

Andrew MacKenzie, Summer 2008

Developing software to evaluate voting mechanisms
with Bill Zwicker

Nickolas Potvin, Summer 2008

Implementing an electronic appliance interface for usability testing
with Chris Fernandes and Jim Hedrick

Maria Tobin, Summer 2008

Improving Photo Retrieval in a User's Browser History
with Chris Fernandes

Jan Vratilav, Summer 2007

Developed visualization approaches for cascading selective undo.
with Chris Fernandes

Susan Beckhardt, Summer 2006

Started development of user interface prototyping hardware for use in general education usability course.
with Chris Fernandes and Jim Hedrick

Andrew Polidore, Fall 2005

Developed experiments to evaluate undo mechanisms
with Chris Fernandes

Vandana Bajaj, 2006

Senior Project: *Software Design Guidance: A Study of its Effectiveness & Extensibility*

Kevin Jaquez, 2006

Senior Project: *Teaching a Second Language: An Interactive Approach*

Matthew Korchinsky, 2006

Senior Project: *Framework for Interactive Applications*

Vandana Bajaj, Summer 2004, 2005

Helped design experiments for design guidance work.

Andrew Burke, 2005

Senior Project: *The Generic Gaming Engine*

Cleveland Crosby, 2005

Senior Project: *Web-Based TOEFL Reading Comprehension Assistance Site*

David Liepmann, 2005

Senior Project: *Experimental Iterated Competition with Artificially Intelligent Go Agents*

Edward Maas, 2005

Senior Project: *Transforming the e-Concordiensis*

RESEARCH

Human-Computer Interaction Techniques, Summer 2005 – present

Collaborators: Chris Fernandes and Andrew Polidore (Union College)

- Developing mechanism for *cascading selective undo*, a new approach that supports undo in the face of dependencies between user actions.
- Developing experiments and user studies to evaluate user ability to predict behavior of selective and linear undo approaches.

Software Design Guidance, August 1998 – present

Collaborators: Leon J. Osterweil (UMass) and Vandana Bajaj (Union College)

- Developing techniques for design guidance using constraints and relationships between design artifacts in Model-View-Controller designs.

- Extending techniques to other design patterns.
- Studying classification of design patterns based on the kinds of guidance we are likely to be able to give.

Software Process Technology, August 1998 – present

Collaborators: Leon J. Osterweil (UMass), Barbara Lerner (Williams College and Mount Holyoke College), and other members of the Laboratory for Advanced Software Engineering Research (UMass)

- Developing ways to effectively model rework in software development and other processes.
- Developing and maintaining run-time infrastructure for Little-JIL process programming language.
- Developing and maintaining apparatus to support experiments that compare processes.
- Developed scheduling support for Little-JIL process programs.

Software Reuse, Reuse Certification, and Testing, January 1994 – August 1995

Collaborators: John C. Knight (UVa)

- Investigated techniques for certification of reusable components and systems built from them.
- Developed techniques for tractably testing safety-critical systems.

User Interfaces and Virtual Reality, May 1993 – September 1993

Collaborators: Randy Pausch (UVa)

- Built a virtual reality simulation of a hopping robot integrating a realistic physical model.

Databases and Automatic Theorem Proving, January 1992 – September 1992

Collaborators: John Pfaltz (UVa)

- Built a system that combined a database system and an automatic theorem proving system to support large axiom sets.
- Built a system for displaying and manipulating military battlefield database information on a map of the battlefield.

OTHER EMPLOYMENT

Senior Software Engineer, Fall 1995 – Summer 1998

Motorola Cellular Infrastructure Group, Arlington Heights, IL

Summer Intern, Summer 1994

Motorola Cellular Infrastructure Group, Arlington Heights, IL

PUBLICATIONS

Authors in italics are undergraduate student co-authors.

Refereed Papers Published in Conferences and Workshops

Aaron G. Cass, *Eric Rose*, Kristina Striegnitz, and Nick Webb. Determining appropriate first contact distance: trade-offs in human-robot interaction experiment design. In *Workshop on Designing and Evaluating Social Robots for Public Settings at the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2015)*, 2015. Hamburg, Germany

Aaron G. Cass, Leon J. Osterweil, and Alexander Wise. A pattern for modeling rework in software development processes. In *Proceedings of the International Conference on Software Process*, May 2009. Vancouver, Canada

- Aaron G. Cass** and Chris S. T. Fernandes. Simulated Conference Submissions: A technique to improve student attitudes about writing. In *Proceedings of the Frontiers in Education Conference*, October 2008. Saratoga Springs, NY
- Aaron G. Cass** and Chris S. T. Fernandes. Using task models for cascading selective undo. In *Proceedings of the International Workshop on Task Models & Diagrams for User Interface Design (TAMODIA) 2006*, October 2006. Hasselt, Belgium. Also appears in *Lecture Notes in Computer Science 4385*, Coninx, Luyten, Schneider (Eds.)
- Aaron G. Cass**, Chris S. T. Fernandes, and *Andrew Polidore*. An empirical evaluation of undo mechanisms. In *Proceedings of NordiCHI 2006*, October 2006. Oslo, Norway
- Aaron G. Cass** and Leon J. Osterweil. Process support to help novices design software faster and better. In *Proceedings of the Automated Software Engineering Conference*, November 2005. Long Beach, CA
- Aaron G. Cass** and Chris S. T. Fernandes. Modeling dependencies for cascading selective undo. In *Proceedings of the IFIP INTERACT 2005 Workshop on Integrating Software Engineering and Usability Engineering*, September 2005. Rome, Italy
- Aaron G. Cass**, Stanley M. Sutton Jr., and Leon J. Osterweil. Formalizing rework in software processes. In *Proceedings of the Ninth European Workshop on Software Process Technology*, September 1–2, 2003. Helsinki, Finland
- Aaron G. Cass** and Leon J. Osterweil. Applying real-time scheduling techniques to software processes: A position paper. In *Proceedings of the Eighth European Workshop on Software Process Technology*, June 19–21, 2001. Witten, Germany
- Aaron G. Cass** and Leon J. Osterweil. Design guidance through the controlled application of constraints. In *Proceedings of the Tenth International Workshop on Software Specification and Design*, November 5–7, 2000. San Diego, CA
- Alexander Wise, **Aaron G. Cass**, Barbara Staudt Lerner, Eric K. McCall, Leon J. Osterweil, and Stanley M. Sutton, Jr. Using Little-JIL to coordinate agents in software engineering. In *Proceedings of the Automated Software Engineering Conference*, September 2000. Grenoble, France
- Aaron G. Cass**, Barbara Staudt Lerner, Eric K. McCall, Leon J. Osterweil, Stanley M. Sutton, Jr., and Alexander Wise. Little-JIL/Juliette: A process definition language and interpreter. In *Proceedings of the 22nd International Conference on Software Engineering*, June 2000. Limerick, Ireland
- Aaron G. Cass**. Implementing a software reuse repository: Lessons learned. In *Proceedings of the Motorola Software Engineering Symposium*, June 1996. Scottsdale, AZ
- John C. Knight, **Aaron G. Cass**, Antonio M. Fernandez, and Kevin G. Wika. Testing a safety-critical application. In *Proceedings of the 1994 International Symposium on Software Testing and Analysis (ISSTA)*, August 1994. Seattle, WA

Unpublished Papers

- Aaron G. Cass**, Leon J. Osterweil, and Alexander Wise. A process pattern for modeling rework. Technical report, University of Massachusetts, Department of Computer Science, 2008
- Aaron G. Cass** and Chris S. T. Fernandes. Algorithms for cascading selective undo. Submitted to *Graphics Interface 2006*, Quebec, Canada, December 2005
- Aaron G. Cass** and Leon J. Osterweil. Process support to help novices design software faster and better. Technical Report 2005-018, University of Massachusetts, Department of Computer Science, April 2005
- Aaron G. Cass** and Leon J. Osterweil. Programming rework in software processes. Technical Report 2002-025, University of Massachusetts, Department of Computer Science, March 2002
- Aaron G. Cass** and Leon J. Osterweil. Requirements-based design guidance: A process-centered consistency management approach. Technical Report 2002-024, University of Massachusetts, Department of Computer Science, March 2002

Aaron G. Cass, Krithi Ramamritham, and Leon J. Osterweil. Exploiting hierarchy for planning and scheduling. Technical Report 2000-064, University of Massachusetts, Department of Computer Science, December 2000

Aaron G. Cass, Barbara Staudt Lerner, Eric K. McCall, Leon J. Osterweil, and Alexander Wise. Logically central, physically distributed control in a process runtime environment. Technical Report 99-65, University of Massachusetts, Department of Computer Science, November 1999

Aaron G. Cass, Hyungwon Lee, Barbara Staudt Lerner, and Leon J. Osterweil. Formally defining coordination processes to support contract negotiations. Technical Report 99-39, University of Massachusetts, Department of Computer Science, June 1999

Aaron G. Cass, Barbara Staudt Lerner, and Leon J. Osterweil. Formally defining negotiation processes for electronic commerce applications. In *First IAC Workshop on Internet-Based Negotiation Technologies*, March 1999. IBM TJ Watson Research Center, Yorktown Heights, NY

GRANTS AND AWARDS

NSF Course, Curriculum, and Laboratory Improvement program, March 2006
Appreciating Technology and Understanding Science Through Usability Studies
Award number 536335: \$149,991 to outfit Laboratory for Empirical Study of Systems and develop two usability courses.
Co-PI with Chris Fernandes

Educator's Grant Program, Fall 2004
\$800 for travel to FSE 2004

SERVICE

Division IV Representative to the Faculty Executive Committee (FEC), Fall 2010 – present
Union College

Member, Planning and Priorities Group (P&P), Fall 2010 – present
Union College

Member of Web Page Committee, Fall 2005 – present
Union College Department of Computer Science

Co-chair of papers committee, 2009 – 2012
Consortium for Computing Sciences in Colleges, Northeastern Region (CCSCNE) conference, 2010, 2011, and 2012 editions

Reviewer, 2005, 2007, 2008, 2010, 2011, 2012
IEEE Transactions on Education

Division IV Representative to the Academic Affairs Council (AAC), Fall 2006 – Fall 2009
Union College

Member of Sub-Council (of the AAC) on Courses and Programs, Fall 2006 – Fall 2009
Union College

Seminar Series Co-coordinator, Fall 2003 – Spring 2006
Union College Department of Computer Science

Reviewer, 2005
Consortium for Computing Sciences in Colleges in the Northeast Conference

Reviewer, 2005
IEEE Transactions on Software Engineering

Judge for CCSCNE Programming Contest, Spring 2004
Union College

Member of Web Page Committee, May 2002 – November 2002
Unitarian Society of Northampton and Florence

Graduate Representative, Spring and Fall 2000
University of Massachusetts Department of Computer Science

Member of Program Committee, June 1997
Motorola Software Engineering Symposium, St. Charles, Illinois

Reviewer, November 1994
Third International Conference on Software Reusability, Rio de Janeiro, Brazil

Member of Curriculum Development Committee, Summer – Fall 1993
University of Virginia Department of Computer Science

President of ACM Chapter, Fall 1992 and Spring 1993
University of Virginia Department of Computer Science