ZACHARY J. OSTER
CURRICULUM VITAE

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Whitewater, WI 53190   Website: http://cs.uww.edu/~osterz/

RESEARCH INTERESTS

Formal methods for specification, analysis, and verification of requirements and design preferences, especially in component-based and compositional software systems.

EDUCATION

Ph.D. Aug. 2013, Computer Science, Iowa State University, Ames, Iowa
M.S. Dec. 2009, Computer Science, Iowa State University, Ames, Iowa
B.S. May 2007, Computer Science, South Dakota State University, Brookings, S.D.
B.A. May 2007, Music, South Dakota State University, Brookings, S.D.

TEACHING

University of Wisconsin-Whitewater, Whitewater, Wisconsin (Assistant Professor)
- COMPSCI 171: Introduction to Programming (Visual Basic). Fall 2013, Spring 2014, Fall 2014.
- COMPSCI 271: Assembly Programming (Intel 8086). Fall 2013, Summer 2014 (3-week hybrid course).
- COMPSCI 271: Assembly Programming (MIPS). Fall 2014, Spring 2015, Summer 2015 (3-week hybrid course), Fall 2015, Spring 2016, Summer 2016 (3-week hybrid course), Fall 2016.
- COMPSCI 320: Concepts of Programming Languages (new course that I developed). Fall 2015, Fall 2016.
- COMPSCI 322: Computer Languages and Compilers. Spring 2015, Spring 2016.
- COMPSCI 424: Operating Systems. Fall 2014, Spring 2016.
- COMPSCI 481: Web Server and Unix Administration. Spring 2014, Spring 2015, Fall 2015, Fall 2016.

Iowa State University, Ames, Iowa (Teaching Assistant)
- Formal Methods in Software Engineering. Spring 2013.
- Software Construction and User Interface. Fall 2012.
- Computer Literacy and Applications (online-only). Spring 2008 – Spring 2009.

Grand View University, Des Moines, Iowa (Adjunct Lecturer)
- Object-Oriented Programming with Data Structures. Spring 2013.
- Computer Proficiency (short course). Fall 2012 – Spring 2013.
- Introduction to Object-Oriented Programming. Fall 2012 – Spring 2013.

STUDENTS MENTORED IN RESEARCH

Joshua Leinberger, 2013-2014. Visualization of preferences and tradeoffs in conditional importance networks (CI-nets). Funded by UW-Whitewater Strategic Initiative grant (Lopamudra Mukherjee, PI).

Pablo Martinez, 2014-2015. Visualization of preferences and tradeoffs in conditional importance networks (CI-nets). Continuing Joshua Leinberger's work. Funded in part by UW-Whitewater Strategic Initiative grant (Lopamudra Mukherjee, PI).

UNIVERSITY SERVICE

University of Wisconsin-Whitewater

University Curriculum Committee	2015 – present
College of Letters and Sciences	
Curriculum Committee	2014 – present
Master Advisor (for Computer Science)	2014 – present
Department of Computer Science	
Search Committee for tenure-track faculty	2016 – present
Master's Program Planning Committee	2015 – present
Assessment Committee	2014 – present
Curriculum Committee (Chair)	2014 – present
Merit Committee	2014 – present
Technical Support Committee	2014 – present
Department of Mathematical & Computer Sciences	
Colloquium Committee	2013 – 2014
Curriculum Committee	2013 – 2014
Media Arts & Game Development Program	
Search Committee for tenure-track faculty (CS representative)	2015 – 2016
Plan-It Purple new student orientation advisor (for Computer Science)	2016 – present
Advisor to student organizations	
Magic: The Gathering Club	2016 – present
Linux Club	2015 – 2016

Iowa State University, Department of Computer Science

Computer Science Graduate Advisory Committee/Graduate Student Organization	
Treasurer	2010 – 2011 and 2012 – 2013
President	2011 – 2012
New Graduate Student Orientation Leader	2010 – 2013
Poster Day Coordinator	2011 – 2013
Graduate Curriculum Committee (student member)	2011 – 2013
Colloquium Committee (student member)	2010 – 2011

PROFESSIONAL SERVICE

Conference/Workshop Program Committee Member (includes peer-review work)

IEEE Services Congress – Visionary Track on Service Composition for the Future Internet (SCFI)	2015
ASE International Conference on Cyber Security	2014
Cyber Security and Information Intelligence Research Workshop (CSIIRW)	2012

Peer Reviewer for Journal and Conference Paper Submissions

IT Professional	2016
Journal of Internet Services and Applications	2015
IEEE Software	2014
IEEE Intl. Conf. on Service-Oriented Computing and Applications (SOCA)	2014
Conference on Emerging Applications of Information Technology (EAIT)	2012, 2014
International Conference on Service-Oriented Computing (ICSOC)	2012 – 2013
International Symposium on Service Oriented System Engineering (SOSE)	2011
International Workshop on Web Services and Formal Methods (WS-FM)	2010

CONFERENCE PUBLICATIONS (FULLY PEER-REVIEWED AND ARCHIVED)

1. Zachary J. Oster, Ganesh Ram Santhanam, and Samik Basu. "Scalable Modeling and Analysis of Requirements Preferences: A Qualitative Approach Using CI-Nets." *23rd IEEE Intl. Requirements Engineering Conference* (RE'15), pages 214-219. RE:Next! track (acceptance rate 30.6%). IEEE, 2015.

2. Zachary J. Oster. "Reasoning with Qualitative Preferences to Develop Optimal Component-Based Systems". Extended abstract for ACM Student Research Competition. *35th Intl. Conference on Software Engineering* (ICSE), pages 1456-1458. IEEE, 2013.

3. Zachary J. Oster, Ganesh Ram Santhanam, Vasant Honavar, and Samik Basu. "Model Checking of Qualitative Sensitivity Preferences to Minimize Credential Disclosure." *9th Intl. Symposium on Formal Aspects of Component Software* (FACS 2012). *Lecture Notes in Computer Science*, vol. 7684, pages 205-223. Springer, 2013.

4. Zachary J. Oster, Syed Adeel Ali, Ganesh Ram Santhanam, Partha S. Roop, and Samik Basu. "A Service Composition Framework Based on Goal-Oriented Requirements Engineering, Model Checking, and Qualitative Preference Analysis." *10th Intl. Conference on Service-Oriented Computing* (ICSOC 2012). *Lecture Notes in Computer Science*, vol. 7636, pages 283-297. Springer, 2012.

5. Zachary J. Oster, Ganesh Ram Santhanam, and Samik Basu. "Automating Analysis of Qualitative Preferences in Goal-Oriented Requirements Engineering" (short paper). *26th IEEE/ACM Intl. Conference on Automated Software Engineering* (ASE 2011), pages 448-451. IEEE, 2011.

6. Zachary J. Oster, Ganesh Ram Santhanam, and Samik Basu. "Identifying Optimal Composite Services by Decomposing the Service Composition Problem." *IEEE Intl. Conference on Web Services* (ICWS 2011), pages 267-274. IEEE Computer Society, 2011.

7. Zachary J. Oster, Ganesh Ram Santhanam, and Samik Basu. "Decomposing the Service Composition Problem." *8th IEEE European Conference on Web Services* (ECOWS 2010), pages 163-170. IEEE Computer Society, 2010.

8. Zachary J. Oster and Samik Basu. "Extending Substitutability in Composite Services by Allowing Asynchronous Communication with Message Buffers" (short paper). *21st IEEE Intl. Conference on Tools with Artificial Intelligence* (ICTAI 2009), pages 572-575. IEEE Computer Society, 2009.

WORKSHOP PUBLICATION (LIGHTLY PEER-REVIEWED)

1. Ganesh Ram Santhanam, Zachary J. Oster, and Samik Basu. "Identifying a Preferred Countermeasure Strategy for Attack Graphs" (extended abstract). *8th Cyber Security and Information Intelligence Research Workshop* (CSIIRW), article 11. ACM, 2013.

CONFERENCE AND WORKSHOP PRESENTATIONS

1. Zachary J. Oster. "Efficient Satisfiability Analysis for Conditional Importance Networks." *10th Multidisciplinary Workshop on Advances in Preference Handling* (MPREF 2016), in conjunction with Intl. Joint Conference on Artificial Intelligence (IJCAI 2016). July 9, 2016. New York, NY. Peer-reviewed, non-archival venue. Paper available online: http://www.mpref-2016.preflib.org/wp-content/uploads/2016/06/paper-13.pdf.

2. Scalable Modeling and Analysis of Requirements Preferences: A Qualitative Approach Using CI-Nets (conference publication 1). *23rd IEEE Intl. Requirements Engineering Conference (RE'15)*, RE:Next! track. August 27, 2015.

3. Model Checking of Qualitative Sensitivity Preferences to Minimize Credential Disclosure (conference publication 3). *Intl. Symposium on Formal Aspects of Component Software (FACS).* September 13, 2012. Mountain View, California.

4. Automating Analysis of Qualitative Preferences in Goal-Oriented Requirements Engineering (conference publication 5). *IEEE/ACM Intl. Conference on Automated Software Engineering (ASE).* November 10, 2011. Lawrence, Kansas.

5. Identifying Optimal Composite Services by Decomposing the Service Composition Problem (conference publication 6). *IEEE Intl. Conference on Web Services (ICWS).* July 8, 2011. Washington, D.C.

6. Decomposing the Service Composition Problem (conference publication 7). *IEEE European Conference on Web Services (ECOWS).* December 3, 2010. Ayía Napa, Cyprus.

7. Failure Analysis for Composition of Web Services Represented as Labeled Transition Systems (work by Dinanath Nadkarni, Samik Basu, Robyn Lutz, and Vasant Honavar). *Intl. Workshop on Web Services and Formal Methods (WS-FM).* September 16, 2010. Hoboken, New Jersey.

8. Extending Substitutability in Composite Services by Allowing Asynchronous Communication with Message Buffers (conference publication 8). *IEEE Intl. Conference on Tools with Artificial Intelligence (ICTAI).* November 4, 2009. Newark, New Jersey.

COLLOQUIUM PRESENTATIONS

1. Improving Software Development with Qualitative Preference Reasoning and Formal Verification. *Department of Mathematical and Computer Sciences Colloquium.* University of Wisconsin-Whitewater. November 21, 2013.

2. Surviving and Thriving as a Computer Science Graduate Student. *Department of Computer Science Colloquium*. Iowa State University. September 15, 2011.

WORK EXPERIENCE

Consultant   October 2014 – present
IDP Interactive Degree Planner LLC   *Whitewater, WI*
   ✦ Coordinated testing and validation for an interactive degree planning tool
   ✦ Helped align degree planning tool with existing curriculum and advising processes
   ✦ Recorded feedback from potential customers during prototype demonstrations

Research Assistant   May 2009 – May 2013
Iowa State University, Department of Computer Science   *Ames, IA*
   ✦ Refactored Web service composition tool to be more reliable & extensible
   ✦ Implemented tools for analyzing and transforming formulas using Java
   ✦ Developed new tool for analyzing system requirements, preferences, and tradeoffs

Research Assistant   August 2010 – August 2012
Iowa State University, IT Services (contract work for Cray, Inc.)   *Ames, IA*
   ✦ Developed correctness tests for a parallel Fast Fourier Transform library
   ✦ Created test plan and tests for compiler support of Fortran 2008 coarrays
   ✦ Isolated and reported bugs in Fortran compiler and various libraries

Software Engineer Intern   May 2006 – August 2006
U.S. Geological Survey, National Center for EROS   *Sioux Falls, SD*
   ✦ Designed, implemented, & tested software to automate satellite downlink operations
   ✦ Worked closely with end users to define project requirements
   ✦ Prepared and delivered presentations for project status reviews

PROFESSIONAL AFFILIATIONS

Association for Computing Machinery (ACM)	2009 – present
Special Interest Group on Computer Science Education (SIGCSE)	2013 – present
Special Interest Group on Software Engineering (SIGSOFT)	2013 – present
Director of Judges, ACM North Central North America Regional Programming Contest (local site in Des Moines, IA)	2012
Institute for Electrical and Electronics Engineering (IEEE)	2009 – present
IEEE Computer Society	2011 – present
IEEE Reliability Society	2011 – present

HONORARY SOCIETIES

Upsilon Pi Epsilon (computer science)	elected 2009
Tau Beta Pi (engineering)	elected 2005
Phi Kappa Phi (general)	elected 2004