

SAM MALEK

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1 EDUCATION

Doctor of Philosophy University of Southern California Dissertation: <i>A User-Centric Approach for Improving a Distributed Software System's Deployment Architecture</i> Thesis Advisor: Nenad Medvidovic	Computer Science	August 2007
Master of Science University of Southern California Emphasis on Software Engineering	Computer Science	May 2004
Bachelor of Science University of California, Irvine	Information and Computer Science	December 2000

2 EMPLOYMENT HISTORY

July 2015 – present	Associate Professor Department of Informatics Donald Bren School of Information and Computer Sciences University of California, Irvine
July 2015 – Present	Director Software Engineering and Analysis Laboratory University of California, Irvine
July 2015 – Present	Faculty Member Institute for Software Research University of California, Irvine
August 2013 – June 2015	Associate Professor Computer Science Department Volgenau School of Engineering George Mason University
August 2007 – June 2015	Director Software Design and Analysis Laboratory University of California, Irvine
August 2007 – June 2015	Faculty Member C4I Center George Mason University
August 2007 – July 2013	Assistant Professor Computer Science Department Volgenau School of Engineering George Mason University
January 2003 – May 2007	Graduate Research Assistant

Computer Science Department
University of Southern California

- April 2005 – May 2007 Software Architect
Boeing Corporation
Huntington Beach, CA
- December 2000 – May 2002 Software Engineer
PriceWaterhouseCoopers Consulting (IBM Global Business Services), Los Angeles, CA
- August 1999 – Nov. 2000 Software Engineer
FieldCentrix, Irvine, CA
- May 1998 – September 1999 Software Engineer
Neural Computing Systems Labs, Irvine, CA

3 RESEARCH INTERESTS

- Software Engineering
- Software Architecture and Design
- Software Dependability and Security
- Software Analysis and Testing
- Autonomic Computing
- Mobile Computing

4 HONORS, AWARDS, AND STATISTICS

- H-index: 30
(scholar.google.com)
- Citations: 3,399
(scholar.google.com)
- Publication selected as one of the best papers
20th International Symposium on Formal Methods (FM 2015)
- Publication selected as one of the best papers
9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014)
- Mason Emerging Researcher/Scholar/Creator Award 2013
George Mason University
- NSF CAREER Award 2013
- Publication selected as one of the best papers
7th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)

- Outstanding Faculty Research Award 2011
Computer Science Department, George Mason University
- DARPA Computer Science Study Group 2011 – 2014
Selective early career award given annually to 12 academic panelists
- ACM Doctoral Dissertation Competition finalist 2007
Nominated by the University of Southern California
- Outstanding Graduate Student Researcher Award 2005
Computer Science Department, University of Southern California
- USC Viterbi School of Engineering Doctoral Fellow 2004 – 2008
- Magna Cum Laude 2000
- Cody Thorne Memorial Scholarship Award 1998
Awarded annually to the youngest and highest scholastic student of the year
- Dean’s Honor List 1997 – 2000

5 RESEARCH GRANTS AND CONTRACTS

- G1.** National Science Foundation (NSF)
“Efficient Formal Analysis of Evolving Software Systems”
Duration: 7/1/2016 – 6/30/2019
Investigators: Sam Malek (PI), Hamid Bagheri (Co-PI)
Award Amount: \$499,170
- G2.** National Science Foundation (NSF)
“Planning and Prototyping a Community-Wide Software Architecture Instrument”
Duration: 7/1/2016 – 6/30/2019
Investigators: Sam Malek (PI at UCI), Joshua Garcia (Co-PI at UCI), Nenad Medvidovic (Lead PI at USC), and Mehdi Mirakhorli (PI at RIT)
Award Amount: \$130,000
- G3.** Air Force Office of Scientific Research (AFOSR)
“RASS: Resilient Autonomic Software Systems”
Duration: 10/15/2015 – 10/14/2018
Investigators: Sam Malek (PI at UCI), Daniel A. Menasce (Lead PI at GMU), Hassan Gomaa (Co-PI at GMU)
Award Amount: \$1,016,641
- G4.** Department of Homeland Security (DHS)
“Tools for Automated Detection and Assessment of Security Vulnerabilities in Mobile Applications”
Duration: 6/1/2014 – 5/31/2017
Investigator: Sam Malek (Sole PI)
Award Amount: \$500,000
- G5.** National Security Agency (NSA)
“Compositional Analysis of Android Apps for Security Vulnerabilities”
Duration: 9/5/2014 – 4/24/2015

- Investigator: Sam Malek (Sole PI)
Award Amount: \$200,000
- G6.** National Security Agency (NSA)
“Science of Secure Frameworks”
Duration: 1/1/2014 – 12/31/2016
Investigators: Sam Malek (PI at UCI), William Scherlis (Lead PI at CMU) and colleagues at CMU
UCI Award Amount: \$195,000
- G7.** Defense Advanced Research Projects Agency (DARPA)
“Testing Privacy-Preserving Distributed Systems on DETERLab”
Duration: 11/1/2013 – 2/28/2015
Investigators: Sam Malek (PI at GMU), Nenad Medvidovic (Lead PI at USC), and Yuriy Brun (PI at UMass)
Award Amount: \$300,000
GMU Award Amount: \$84,000
- G8.** Office of the Director of National Intelligence (ODNI)
“Automated Approach for Detection and Mitigation of Security Vulnerabilities in Mobile Applications”
Duration: 7/8/2013 – 7/7/2016
Investigator: Sam Malek (Sole PI)
Award Amount: \$359,372
- G9.** Intelligence Advanced Research Projects Activity (IARPA)
“sTile: Private Computing in the Open”
Duration: 9/27/2013 – 9/26/2014
Investigators: Sam Malek (PI at GMU), Nenad Medvidovic (Lead PI at USC), and Yuriy Brun (PI at UMass)
Award Amount: \$300,000
GMU Award Amount: \$84,000
- G10.** National Science Foundation (NSF)
“CAREER: A Mining-Based Approach for Consistent and Timely Adaptation of Component-Based Software”
Duration: 2/1/2013 – 1/31/2018
Investigator: Sam Malek (Sole PI)
Award Amount: \$451,481
- G11.** Army Research Office (ARO)
“Architecture-Based Self-Securing Systems”
Duration: 10/1/2012 – 9/30/2015
Investigators: Sam Malek (PI at GMU), William Scherlis (Lead PI at CMU) and colleagues at CMU
GMU Award Amount: \$200,000
- G12.** Federal Bureau of Investigation (FBI)
“Automated Security Testing and Analysis of Android Applications”
Duration: 9/12/2012 – 9/11/2014
Investigator: Sam Malek (Sole PI)

Award Amount: \$90,000

- G13.** Defense Advanced Research Projects Agency (DARPA)
“Engineering Highly Adaptive Resilient Software Systems”
Duration: 4/25/2011 – 5/31/2016
Investigator: Sam Malek (Sole PI)
Award Amount: \$949,065
- G14.** National Science Foundation (NSF)
“Mining the Execution History of a Software System to Infer the Best Time for its Adaptation”
Duration: 2/1/2012 – 1/31/2014
Investigator: Sam Malek (Sole PI)
Award Amount: \$80,000
- G15.** Science Applications International Corporation (SAIC)
“COTS Very Small Computing Platforms - Tactical”
Duration: 1/1/2010 – 6/30/2011
Investigator: Sam Malek (Sole PI)
Award Amount: \$224,470
- G16.** Science Applications International Corporation (SAIC)
“COTS Very Small Computing Platforms - Security”
Duration: 1/1/2010 – 6/30/2011
Investigator: Sam Malek (Sole PI)
Award Amount: \$99,415
- G17.** National Science Foundation (NSF)
“SASSY: Self-Architecting Software Systems”
Duration: 06/15/2008 – 06/1/2011
Investigators: Sam Malek (Co-PI at GMU), Daniel A. Menasce (PI at GMU), Hassan Gomaa (Co-PI at GMU), and Joao P. Sousa (Co-PI at GMU)
Award Amount: \$479,996
- G18.** US Army Topographic Engineering Center
Duration: 12/20/2006 – 12/20/2010
Investigators: Sam Malek (Co-PI at GMU), Michael Hieb (PI at GMU), and Mark Pullen (Co-PI at GMU)
Award Amount: \$133,187

6 PUBLICATIONS

6.1 JOURNAL ARTICLES

- J1.** Hamid Bagheri, Eunsuk Kang, Sam Malek, and Daniel Jackson. "A Formal Approach for Detection of Security Flaws in the Android Permission System." *Springer Journal on Formal Aspects of Computing*, accepted to appear.
- J2.** Hamid Bagheri, Joshua Garcia, Alireza Sadeghi, Sam Malek, and Nenad Medvidovic. “Software Architectural Principles in Contemporary Mobile Software: from Conception to Practice.” *Journal of Systems and Software (JSS)*, Vol. 119, Pages 31-44, September 2016.

- J3.** Naeem Esfahani, Eric Yuan, Kyle R. Canavera, and Sam Malek. “Inferring Software Component Interaction Dependencies for Adaptation Support.” *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, Vol. 10, No. 4, February 2016.
- J4.** Hamid Bagheri, Alireza Sadeghi, Joshua Garcia, and Sam Malek. “COVERT: Compositional Analysis of Android Inter-App Permission Leakage.” *IEEE Transactions on Software Engineering (TSE)*, Vol. 41, No. 9, September 2015.
- J5.** Eric Yuan, Naeem Esfahani, and Sam Malek. “A Systematic Survey of Self-Protecting Software Systems.” *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, Vol. 8, No. 4, January 2014.
- J6.** Deshan Cooray, Ehsan Kouroshfar, Sam Malek, and Roshanak Roshandel. “Proactive Adaptation for Improving the Reliability of Mission-Critical, Embedded, and Mobile Software.” *IEEE Transactions on Software Engineering (TSE)*, Vol. 39, No. 12, December 2013.
- J7.** Naeem Esfahani, Ahmed Elkhodary, and Sam Malek. “A Learning-Based Framework for Engineering Feature-Oriented Self-Adaptive Software Systems.” *IEEE Transactions on Software Engineering (TSE)*, Vol. 39, No. 11, November 2013.
- J8.** Chris A. Mattmann, Nenad Medvidovic, Sam Malek, George Edwards, and Somo Banerjee. “A Middleware Platform for Providing Mobile and Embedded Computing Instruction to Software Engineering Students.” *IEEE Transactions on Education*, Vol. 55, No. 3, pages 425-435, August 2012.
- J9.** Naeem Esfahani, and Sam Malek. “Utilizing Architectural Styles to Enhance the Adaptation Support of Middleware Platforms.” *Journal of Information and Software Technology (IST)*, Vol. 54, No. 7, pages 786-801, July 2012.
- J10.** Danny Weyns, Sam Malek, and Jesper Andersson. “FORMS: Unifying Reference Model for Formal Specification of Distributed Self-Adaptive Systems.” *ACM Transactions on Autonomous and Adaptive Systems (TAAS) – Special Issue on Formal Methods for Pervasive, Self-Aware and Context-Aware Systems*, Vol. 7, No. 1, pages 1-61, April 2012.
- J11.** Sam Malek, Nenad Medvidovic, and Marija Mikic-Rakic. “Improving a Distributed Software System’s Quality of Service via Redeployment.” *IEEE Transactions on Software Engineering (TSE)*, Vol. 38, No. 1, pages 73-100, January/February 2012.
- J12.** Danny A. Menasce, Hassan Gomaa, Sam Malek, and Joao Pedro Sousa. “SASSY: A Framework for Self-Architecting Service Oriented Systems.” *IEEE Software*, Vol. 28, No. 6, pages 78-85, November/December 2011.
- J13.** Sam Malek, Harshini Ramnath Krishnan, and Jayalakshmi Srinivasan. “Enhancing Middleware Support for Architecture-Based Development through Compositional Weaving of Styles.” *Journal of Systems and Software (JSS)*, Vol. 83, No. 12, pages 2513-2527, December 2010.
- J14.** Sam Malek, George Edwards, Yuriy Brun, Hossein Tajalli, Joshua Garcia, Ivo Krka, Nenad Medvidovic, Marija Mikic-Rakic, Gaurav Sukhatme. “An Architecture-Driven Software Mobility Framework.” *Journal of Systems and Software (JSS)*, special issue on Software Architecture and Mobility, Vol. 83, No. 6, pages 972-989, June 2010.
- J15.** Sam Malek, Marija Mikic-Rakic, and Nenad Medvidovic. “A Style-Aware Architectural Middleware for Resource-Constrained, Distributed Systems.” *IEEE Transactions on Software Engineering (TSE)*, Vol. 31, No. 3, pages 256-272, March 2005.
- J16.** Nenad Medvidovic, Marija Mikic-Rakic, Nikunj Mehta, and Sam Malek. “Software Architectural Support for Handheld Computing.” *IEEE Computer – Special Issue on Handheld Computing*, Vol. 36, No. 9, pages 66-73, September 2003.

6.2 CONFERENCE PUBLICATIONS

- C1. Hamid Bagheri and Sam Malek. “Titanium: Efficient Analysis of Evolving Alloy Specifications.” In *proceedings of the 24th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2016)*, Seattle, WA, November 2016. (27% acceptance rate)
- C2. Bradley Schmerl, Jeff Gennari, Alireza Sadeghi, Hamid Bagheri, Sam Malek, Javier Camara, and David Garlan. “Architecture Modeling and Analysis of Security in Android Systems.” In *proceedings of the 10th European Conference on Software Architecture (ECSA 2016)*, Istanbul, Turkey, September 2016. (14% acceptance rate)
- C3. Reyhaneh Jabbarvand, Alireza Sadeghi, Hamid Bagheri, and Sam Malek. “Energy-Aware Test-Suite Minimization for Android Apps.” In *proceedings of the International Symposium on Software Analysis and Testing (ISSTA 2016)*, Saarbrücken, Germany, July 2016. (25% acceptance rate)
- C4. Hamid Bagheri, Alireza Sadeghi, Reyhaneh Jabbarvand Behrouz, and Sam Malek. “Practical, Formal Synthesis and Autonomic Enforcement of Security Policies for Android.” In *proceedings of the 46th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2016)*, Toulouse, France, June 2016. (20% acceptance rate)
- C5. Nariman Mirzaei, Joshua Garcia, Hamid Bagheri, Alireza Sadeghi, and Sam Malek. “Reducing Combinatorics in GUI Testing of Android Applications.” In *proceedings of the 38th International Conference on Software Engineering (ICSE 2016)*, Austin, TX, May 2016. (19% acceptance rate)
- C6. Eric Yuan and Sam Malek. “Mining Software Component Interactions to Detect Security Threats at the Architectural Level.” In *proceedings of the 13th Working IEEE/IFIP Conference on Software Architecture (WICSA 2016)*, Venice, Italy, April 2016. (20% acceptance rate)
- C7. Nariman Mirzaei, Hamid Bagheri, Riyadh Mahmood, and Sam Malek. “SIG-Droid: Automated System Input Generation for Android Applications.” In *proceedings of the 26th IEEE International Symposium on Software Reliability Engineering (ISSRE 2015)*, Gaithersburg, MD, November 2015. (19% acceptance rate)
- C8. Hamid Bagheri, Eunsuk Kang, Sam Malek, and Daniel Jackson. “Detection of Design Flaws in Android Permission Protocol through Bounded Verification.” In *proceedings of the 20th International Symposium on Formal Methods (FM 2015)*, Oslo, Norway, June 2015. (26% acceptance rate)
- C9. Ehsan Kouroshfar, Mehdi Mirakhorli, Hamid Bagheri, Lu Xiao, Sam Malek, and Yuanfang Cai. “A Study on the Role of Software Architecture in the Evolution and Quality of Software.” In *proceedings of the 12th Working Conference on Mining Software Repositories (MSR 2015)*, Florence, Italy, May 2015. (30% acceptance rate)
- C10. Reyhaneh Jabbarvand, Alireza Sadeghi, Joshua Garcia, Sam Malek, and Paul Ammann. “EcoDroid: An Approach for Energy-Based Ranking of Android Apps.” In *proceedings of the 4th International Workshop on Green and Sustainable Software (GREENS 2015)*, Florence, Italy, May 2015.
- C11. Alireza Sadeghi, Hamid Bagheri, and Sam Malek. “Analysis of Android Inter-App Security Vulnerabilities Using COVERT.” In *proceedings of the 37th International Conference on Software Engineering (ICSE 2015), Demonstrations Track*, Florence, Italy, May 2015.
- C12. Riyadh Mahmood, Nariman Mirzaei, and Sam Malek. “EvoDroid: Segmented Evolutionary Testing of Android Apps.” In *proceedings of the 22nd ACM SIGSOFT International Symposium*

- on the Foundations of Software Engineering (FSE 2014)*, Hong Kong, China, November 2014. (22% acceptance rate)
- C13.** Sam Malek, Hamid Bagheri, and Alireza Sadeghi. “Automated Detection and Mitigation of Inter-Application Security Vulnerabilities in Android.” In *proceedings of the 2nd International Workshop on Software Development Lifecycle for Mobile (DeMobile 2014)*. Hong Kong, China, November 2014.
- C14.** Eric Yuan, Naeem Esfahani, and Sam Malek. “Automated Mining of Software Component Interactions for Self-Adaptation.” In *proceedings of the 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014)*, Hyderabad, India, June 2014. (19% acceptance rate)
- C15.** Alireza Sadeghi, Naeem Esfahani, and Sam Malek. “Mining the Categorized Software Repositories to Improve the Analysis of Security Vulnerabilities.” In *proceedings of the 17th International Conference on Fundamental Approaches to Software Engineering (FASE 2014)*, Grenoble, France, April 2014. (22% acceptance rate)
- C16.** Eric Yuan, Sam Malek, Bradley Schmerl, David Garlan, and Jeff Gennari. “Architecture-Based Self-Protecting Software Systems.” In *proceedings of the 9th International ACM SIGSOFT Conference on Quality of Software Architectures (QoSA 2013)*, Vancouver, Canada, June 2013.
- C17.** Naeem Esfahani, Sam Malek, Kaveh Razavi. “GuideArch: Guiding the Exploration of Architectural Solution Space under Uncertainty.” In *proceedings of the 35th International Conference on Software Engineering (ICSE 2013)*, San Francisco, California, May 2013. (18% acceptance rate)
- C18.** Kyle R. Canavera, Naeem Esfahani, and Sam Malek. “Mining the Execution History of a Software System to Infer the Best Time for its Adaptation.” In *proceedings of the 20th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2012)*, Cary, North Carolina, November 2012. (17% acceptance rate)
- C19.** Naeem Esfahani, Kaveh Razavi, Sam Malek. “Dealing with Uncertainty in Early Software Architecture.” In *proceedings of the 20th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2012)*, New Ideas and Emerging Results track, Cary, North Carolina, November 2012. (20% acceptance rate)
- C20.** Nariman Mirzaei, Sam Malek, Corina S. Păsăreanu, Naeem Esfahani, Riyadh Mahmood. “Testing Android Apps through Symbolic Execution.” In *proceedings of the Java Pathfinder Workshop (JPF 2012)*, Cary, North Carolina, November 2012.
- C21.** Riyadh Mahmood, Naeem Esfahani, Thabet Kacem, Nariman Mirzaei, Sam Malek, and Angelos Stavrou. “A Whitebox Approach for Automated Security Testing of Android Applications on the Cloud.” In *proceedings of the 7th International Workshop on Automation of Software Test (AST 2012)*, Zurich, Switzerland, June 2012.
- C22.** Sam Malek, Naeem Esfahani, Thabet Kacem, Riyadh Mahmood, Nariman Mirzaei, and Angelos Stavrou. “A Framework for Automated Security Testing of Android Applications on the Cloud.” In *proceedings of the 6th International Conference on Software Security and Reliability (SERE 2012)*, Washington, District of Columbia, June 2012.
- C23.** Eric Yuan, and Sam Malek. “A Taxonomy and Survey of Self-Protecting Software Systems.” In *proceedings of the 7th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)*, Zurich, Switzerland, June 2012. (30% acceptance rate)
- C24.** Danny Weyns, M. Usman Iftikhar, Sam Malek, and Jesper Andersson. “Claims and Supporting Evidence for Self-Adaptive Systems – A Literature Study.” In *proceedings of the 7th International*

- Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)*, Zurich, Switzerland, June 2012. (30% acceptance rate)
- C25.** Naeem Esfahani, Ehsan Kouroshfar, and Sam Malek. "Taming Uncertainty in Self-Adaptive Software." In proceedings of the 8th joint meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2011), Szeged, Hungary, September 2011. (16% acceptance rate)
- C26.** Pieter Vromant, Danny Weyns, Sam Malek, and Jesper Andersson. "On Interacting Control Loops in Self-Adaptive Systems." In *proceedings of the 6th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2011)*, Honolulu, Hawaii, May 2011. (27% acceptance rate)
- C27.** Ahmed Elkhodary, Naeem Esfahani, and Sam Malek. "FUSION: A Framework for Engineering Self-Tuning Self-Adaptive Software Systems." In *proceedings of the 18th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2010)*, Santa Fe, New Mexico, November 2010. (20% acceptance rate)
- C28.** Deshan Cooray, Sam Malek, Roshanak Roshandel, and David Kilgore. "RESISTing Reliability Degradation through Proactive Reconfiguration." In *proceedings of the 25th IEEE/ACM International Conference on Automated Software Engineering (ASE 2010)*, Antwerp, Belgium, September 2010. (17% acceptance rate)
- C29.** Naeem Esfahani, and Sam Malek. "Utilizing Architectural Styles to Enhance Adaptation Support in Middleware Platforms." In *proceedings of the 4th European Conference on Software Architectures (ECSA 2010)*, Copenhagen, Denmark, August 2010.
- C30.** Deshan Cooray, Sam Malek, and Roshanak Roshandel. "Context-Driven Optimization of Mobile Service-Oriented Systems for Improving their Resilience." In *proceedings of the IEEE International Workshop on Engineering Mobile Service-Oriented Systems (EMSOS 2010)*, Miami, FL, July 2010.
- C31.** Danny Weyns, Sam Malek, and Jesper Andersson. "FORMS: A Formal Reference Model for Self-Adaptation." In *proceedings of the 7th IEEE International Conference on Autonomic Computing (ICAC 2010)*, Washington, DC, June 2010. (25% acceptance rate)
- C32.** Daniel A. Menasce, Joao Pedro Sousa, Sam Malek, and Hassan Gomaa. "QoS Architectural Patterns for Self-Architecting Software Systems." In *proceedings of the 7th IEEE International Conference on Autonomic Computing (ICAC 2010)*, Washington, DC, June 2010. (25% acceptance rate)
- C33.** Naeem Esfahani, and Sam Malek. "Social Computing Networks: A New Paradigm for Engineering Pervasive Software Systems." In *proceedings of the 32nd International Conference on Software Engineering (ICSE 2010)*, New Ideas and Emerging Results Track, Cape Town, South Africa, May 2010. (25% acceptance rate)
- C34.** Danny Weyns, Sam Malek, and Jesper Andersson. "On Decentralized Self-Adaptation: Lessons from the Trenches and Challenges for the Future." In *proceedings of the ICSE workshop on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2010)*, Cape Town, South Africa, May 2010.
- C35.** Joao Pedro Sousa, Zeynep Zengin, and Sam Malek. "Towards Multi-Design of Situated Service-Oriented Systems." In proceedings of the ICSE workshop on Principles of Engineering Service Oriented Systems (PESOS 2010), Cape Town, South Africa, May 2010.
- C36.** Hassan Gomaa, Koji Hashimoto, Minseong Kim, Sam Malek, and Daniel A. Menasce. "Software Adaptation Patterns for Service-Oriented Architectures." In *proceedings of the 25th ACM*

- Symposium on Applied Computing (SAC 2010), Dependable and Adaptive Distributed Systems (DADS) track, Sierre, Switzerland, March 2010. (30% acceptance rate)*
- C37.** Daniel A. Menasce, John M. Ewing, Hassan Gomaa, Sam Malek, and Joao P. Sousa. "A Framework for Utility-Based Service Oriented Design in SASSY." In *proceedings of the Joint WOSP/SIPEW International Conference on Performance Engineering (WOSP/SIPEW 2010)*, San Jose, California, January 2010. (25% acceptance rate)
- C38.** Ahmed Elkhodary, Sam Malek, and Naeem Esfahani. "On the Role of Features in Analyzing the Architecture of Self-Adaptive Software Systems." In *proceedings of the 4th International Workshop on Models at Runtime (MRT 2009)*, Denver, Colorado, October 2009. (20% acceptance rate for full papers)
- C39.** Naeem Esfahani, Sam Malek, Joao Pedro Sousa, Hassan Gomaa, and Daniel A. Menasce. "A Modeling Language for Activity-Oriented Composition of Service-Oriented Software Systems." In *proceedings of the ACM/IEEE 12th International Conference on Model Driven Engineering Languages and Systems (MODELS 2009)*, Denver, Colorado, October 2009. (16% acceptance rate)
- C40.** Chiyong Seo, George Edwards, Daniel Popescu, Sam Malek, and Nenad Medvidovic. "A Framework for Estimating the Energy Consumption Induced by a Distributed System's Architectural Style." In *proceedings of the ESEC/FSE workshop on Specification and Verification of Component-Based Systems (SAVCBS 2009)*, Amsterdam, Netherlands, August 2009.
- C41.** Sam Malek, Roshanak Roshandel, David Kilgore, and Ibrahim Elhag. "Improving the Reliability of Mobile Software Systems through Continuous Analysis and Proactive Reconfiguration." In *proceedings of the International Conference on Software Engineering (ICSE 2009)*, New Ideas and Emerging Results Track, Vancouver, Canada, May 2009. (17% acceptance rate)
- C42.** Jesper Anderson, Rogerio de Lemos, Sam Malek, and Danny Weyns. "Reflecting on Self-Adaptive Software Systems." In *proceedings of the ICSE 2009 Workshop on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2009)*, Vancouver, Canada, May 2009.
- C43.** Sam Malek, Naeem Esfahani, Danny Menasce, Joao Sousa, and Hassan Gomaa. "Self-Architecting Software Systems (SASSY) from QoS-Annotated Activity Models." In *proceedings of the ICSE 2009 Workshop on Principles of Engineering Service-Oriented Systems (PESOS 2009)*, Vancouver, Canada, May 2009. (23% acceptance rate)
- C44.** Chiyong Seo, Sam Malek, and Nenad Medvidovic. "Component-Level Energy Consumption Estimation for Distributed Java-Based Software Systems." In *proceedings of the 11th International Symposium on Component Based Software Engineering (CBSE 2008)*, Karlsruhe, Germany, October 2008.
- C45.** Sam Malek. "Dealing with the Crosscutting Structure of Software Architectural Styles." In *proceedings of the 32nd Annual IEEE International Computer Software and Applications Conference (COMPSAC 2008)*, Turku, Finland, July 2008. (20% acceptance rate)
- C46.** Marija Mikic-Rakic, Sam Malek, and Nenad Medvidovic. "Architecture-Driven Software Mobility in Support of QoS Requirements." In *proceedings of the International Workshop on Software Architectures and Mobility (SAM 2008)*, Leipzig, Germany, May 2008.
- C47.** Roshanak Roshandel, and Sam Malek. "Refining Reliability Estimation of Mobile Software Systems." In *proceedings of the International Workshop on Software Architectures and Mobility (SAM 2008)*, Leipzig, Germany, May 2008.

- C48.** Chiyoung Seo, Sam Malek, and Nenad Medvidovic. “Estimating the Energy Consumption in Pervasive Java-Based Systems.” In *proceedings of the 6th IEEE International Conference on Pervasive Computing and Communications (PerCom 2008)*, Hong Kong, March 2008.
- C49.** Sam Malek. “Effective Realization of Software Architectural Styles with Aspects.” In *proceedings of the 7th Working IEEE/IFIP Conference on Software Architecture (WICSA 2008)*, Vancouver, BC, Canada, February 2008.
- C50.** Chiyoung Seo, George Edwards, Sam Malek, and Nenad Medvidovic. “A Framework for Estimating the Impact of a Distributed Software System’s Architectural Style on its Energy Consumption.” In *proceedings of the 7th Working IEEE/IFIP Conference on Software Architecture (WICSA 2008)*, Vancouver, BC, Canada, February 2008.
- C51.** George Edwards, Chiyoung Seo, Daniel Popescu, Sam Malek, and Nenad Medvidovic. “Self-* Software Architectures and Component Middleware in Pervasive Environments.” In *proceedings of the 5th International Workshop on Middleware for Pervasive and Ad-Hoc Computing (MPAC 2007)*, Newport Beach, California, November 2007.
- C52.** Chiyoung Seo, Sam Malek, and Nenad Medvidovic. “An Energy Consumption Framework for Distributed Java-Based Systems.” In *proceedings of the 22nd IEEE/ACM International Conference on Automated Software Engineering (ASE 2007)*, Atlanta, Georgia, November 2007.
- C53.** Nenad Medvidovic, and Sam Malek. “Software Deployment Architecture and Quality-of-Service in Pervasive Environments.” In *proceedings of the International Workshop on the Engineering of Software Services for Pervasive Environments (ESSPE 2007)*, Dubrovnik, Croatia, September 2007.
- C54.** Sam Malek, Chiyoung Seo, Sharmila Ravula, Brad Petrus, and Nenad Medvidovic. “Reconceptualizing a Family of Heterogeneous Embedded Systems via Explicit Architectural Support.” In *proceedings of the 29th International Conference on Software Engineering (ICSE 2007)*, Minneapolis, Minnesota, May 2007. (25% acceptance rate)
- C55.** Chiyoung Seo, Sam Malek, George Edwards, Nenad Medvidovic, Brad Petrus, and Sharmila Ravula. “Exploring the Role of Software Architecture in Dynamic and Fault Tolerant Pervasive Systems.” In *proceedings of the Workshop on Software Engineering of Pervasive Computing Applications, Systems and Environments (SEPCASE 07)*, Minneapolis, Minnesota, May 2007.
- C56.** George Edwards, Sam Malek, and Nenad Medvidovic. “Scenario-Driven Dynamic Analysis of Distributed Architectures.” In *proceedings of the 10th International Conference on Fundamental Approaches to Software Engineering (FASE 2007)*, Braga, Portugal, March 2007. (15% acceptance rate)
- C57.** Sam Malek, Chiyoung Seo, and Nenad Medvidovic. “Tailoring an Architectural Middleware Platform to a Heterogeneous Embedded Environment.” In *proceedings of the 6th International Workshop on Software Engineering and Middleware (SEM 2006)*, Portland, Oregon, November 2006.
- C58.** Sam Malek. “A User-Centric Framework for Improving a Distributed Software System’s Deployment Architecture.” In *proceedings of the doctoral track at the 14th ACM SIGSOFT Symposium on Foundation of Software Engineering (FSE 2006)*, Portland, Oregon, November 2006.
- C59.** Sam Malek, Chiyoung Seo, Sharmila Ravula, Brad Petrus, and Nenad Medvidovic. “Providing Middleware-Level Facilities to Support Architecture-Based Development of Software Systems in Pervasive Environments.” In *proceedings of the 4th International Workshop on Middleware for Pervasive and Ad-Hoc Computing (MPAC 2006)*, Melbourne, Australia, November 2006.

- C60.** Sam Malek, Marija Mikic-Rakic, and Nenad Medvidovic. “A Decentralized Redeployment Algorithm for Improving the Availability of Distributed Systems.” In *proceedings of the 3rd International Conference on Component Deployment (CD 2005)*, Grenoble, France, November 2005.
- C61.** Marija Mikic-Rakic, Sam Malek, and Nenad Medvidovic. “Improving Availability in Large, Distributed, Component-Based Systems via Redeployment.” In *proceedings of the 3rd International Conference on Component Deployment (CD 2005)*, Grenoble, France, November 2005.
- C62.** Christian Mattmann, Sam Malek, Nels Beckman, Marija Mikic-Rakic, Nenad Medvidovic, and Daniel Crichton. “GLIDE: A Grid-based Lightweight Infrastructure for Data-intensive Environments.” In *proceedings of the European Grid Conference (EGC 2005)*, Amsterdam, Netherlands, February 2005.
- C63.** Sam Malek, Marija Mikic-Rakic, Nenad Medvidovic. “An Extensible Framework for Autonomic Analysis and Improvement of Distributed Deployment Architectures.” In *proceedings of the ACM SIGSOFT Workshop on Self-Managed Systems (WOSS 2004)*, Newport Beach, California, October 2004.
- C64.** Marija Mikic-Rakic, Sam Malek, Nels Beckman, and Nenad Medvidovic. “A Tailorable Environment for Assessing the Quality of Deployment Architectures in Highly Distributed Settings.” In *proceedings of the 2nd International Conference on Component Deployment (CD 2004)*, Edinburgh, Scotland, May 2004.
- C65.** Marija Mikic-Rakic, Sam Malek, Nels Beckman, and Nenad Medvidovic. “Improving Availability of Distributed Event-Based Systems via Run-Time Monitoring and Analysis.” In *proceedings of the Twin Workshop on Architecting Dependable Systems (WADS 2004)*, Edinburgh, UK, May 2004, and Florence, Italy, June 2004.
- C66.** Nenad Medvidovic, Sam Malek, and Marija Mikic-Rakic. “Software Architectures and Embedded Systems.” In *proceedings of the Monterey Workshop on Software Engineering for Embedded Systems*, Chicago, Illinois, September 24-26, 2003.

6.3 BOOK CHAPTERS

- B1.** Sam Malek, Kyle Canavera, and Naeem Esfahani. “Automated Inference Techniques to Assist with the Construction of Self-Adaptive Software.” In *Managing Trade-offs in Adaptable Software Architectures*. Editors I. Mistrik, N. Ali, J. Grundy, R. Kazman, and B. Schmerl. Elsevier, 2016.
- B2.** Naeem Esfahani, and Sam Malek. “Uncertainty in Self-Adaptive Software Systems.” In *Software Engineering for Self-Adaptive Systems 2*, Editors R. de Lemos, H. Giese, H. Müller, and M. Shaw. Lecture Notes in Computer Science Hot Topics, Springer, 2013.
- B3.** Danny Weyns, Bradley Schmerl, Vincenzo Grassi, Sam Malek, Raffaella Mirandola, Christian Prehofer, Jochen Wuttke, Jesper Andersson, Holger Giese, and Karl Goschka. “On Patterns for Decentralized Control in Self-Adaptive Systems.” In *Software Engineering for Self-Adaptive Systems 2*, Editors R. de Lemos, H. Giese, H. Müller, and M. Shaw. Lecture Notes in Computer Science Hot Topics, Springer, 2012.
- B4.** Rogerio de Lemos, Holger Giese, Hausi Muller, Mary Shaw, Jesper Andersson, Luciano Baresi, Basil Becker, Nelly Bencomo, Yuriy Brun, Bojan Cikic, Ron Desmarais, Schahram Dustdar, Gregor Engels, Kurt Geihs, Karl M. Goeschka, Alessandra Gorla, Vincenzo Grassi, Poala Inverardi, Gabor Karsai, Jeff Kramer, Marin Litoiu, Antonia Lopes, Jeff Magee, Sam Malek, Serge Mankovskii, Raffaella Mirandola, John Mylopoulos, Oscar Nierstrasz, Mauro Pezze,

Christian Prehofer, Wilhelm Schafer, Wilhelm Schlichting, Bradley Schmerl, Dennis B. Smith, Joao P. Sousa, Gabriel Tamura, Ladan Tahvildari, Norha M. Villegas, Thomas Vogel, Danny Weyns, Kenny Wong, Jochen Wuttke. “Software Engineering for Self-Adaptive Systems: A second Research Roadmap.” In *Software Engineering for Self-Adaptive Systems 2*, Editors R. de Lemos, H. Giese, H. Müller, and M. Shaw. Lecture Notes in Computer Science Hot Topics, Springer, 2012.

- B5.** Jesper Andersson, Rogerio de Lemos, Sam Malek, and Danny Weyns. “Modeling Dimensions of Self-Adaptive Software Systems.” In *Software Engineering for Self-Adaptive Systems*, Editors B. H. C. Cheng, R. de Lemos, H. Giese, P. Inverardi, and J. Magee, Lecture Notes in Computer Science Hot Topics, Springer, 2009.
- B6.** Betty H. C. Cheng, Rogério de Lemos, Holger Giese, Paola Inverardi, Jeff Magee, Jesper Andersson, Basil Becker, Nelly Bencomo, Yuriy Brun, Bojan Cukic, Giovanna Di Marzo Serugendo, Schahram Dustdar, Anthony Finkelstein, Cristina Gacek, Kurt Geihs, Vincenzo Grassi, Gabor Karsai, Holger M. Kienle, Jeff Kramer, Marin Litoiu, Sam Malek, Raffaella Mirandola, Hausi A. Müller, Sooyong Park, Mary Shaw, Matthias Tichy, Massimo Tivoli, Danny Weyns, Jon Whittle. “Software Engineering for Self-Adaptive Systems: A Research Roadmap.” In *Software Engineering for Self-Adaptive Systems*, Editors B. H. C. Cheng, R. de Lemos, H. Giese, P. Inverardi, and J. Magee, Lecture Notes in Computer Science, Springer, 2009.
- B7.** Sam Malek, Nels Beckman, Marija Mikic-Rakic, and Nenad Medvidovic. “A Framework for Ensuring and Improving Dependability in Highly Distributed Systems.” In *Architecting Dependable Systems III*, Editors R. de Lemos, C. Gacek, and A. Romanowski, Springer Verlag, October 2005.

6.4 EDITED BOOKS AND JOURNALS

- E1.** Danny Weyns, Sam Malek, Jesper Andersson, and Bradley Schmerl. “Introduction to the Special Issue on the State of the Art in Engineering Self-Adaptive Software Systems.” *Journal of Systems and Software (JSS)*, Vol. 85, No. 12, pages 2675-2677, December 2012.
- E2.** Danny Weyns, Sam Malek, Rogerio de Lemos, and Jesper Andersson, eds. “Self-Organizing Architectures.” *Lecture Notes in Computer Science (LNCS)*, Springer Verlag, Vol. 6090, 300 pages, September 2009. ISBN: 978-3-642-14411-0

6.5 DISSERTATION

- Sam Malek. “A User-Centric Approach for Improving a Distributed Software System’s Deployment Architecture.” PhD thesis. Computer Science Department, University of Southern California, 2007.

7 TEACHING

7.1 UNIVERSITY OF CALIFORNIA, IRVINE

- **INF 124 / CompSci 137 – Internet Applications Engineering**
Terms: Spring 2016
Upper-division undergraduate course for several majors within ICS
- **INF 221 – Software Architecture**
Terms: expected to teach in Fall 2016
Graduate-level core course for Software Engineering M.S. and Ph.D. students

7.2 GEORGE MASON UNIVERSITY

- **SWE 699 / CS 795 / IT 821 – Software Architecture Research Issues**
Terms taught: Spring 2010
Graduate-level elective course for M.S. and Ph.D. level students
- **SWE 699 / CS 795 / IT 821 – Service-Oriented Architecture**
Terms taught: Spring 2009, Fall 2011
Graduate-level elective course for M.S. and Ph.D. level students
- **SWE 622 – Distributed Software Engineering**
Terms taught: Fall 2007, Spring 2008, Fall 2008, Fall 2009, Spring 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014
Graduate-level core course for the M.S. degree in Software Engineering
- **SWE 443 – Software Architectures**
Terms taught: Spring 2013
Upper-division undergraduate course for BS CS and BS ACS majors

7.3 UNIVERSITY OF SOUTHERN CALIFORNIA

- **CS 589 – Software Engineering for Embedded Systems**
Teaching Assistant, Fall 2003; Guest Lecturer, Fall 2004-2006
- **CS 377 – Introduction to Software Engineering**
Guest Lecturer, Fall 2006

8 SUPERVISED STUDENTS AND RESEARCHERS

8.1 POSTDOCTORAL ASSOCIATES

CURRENT

- Hamid Bagheri
Sept 2013 – present
- Joshua Garcia
July 2014 – present

ALUMNI

- Yonghee Shin
August 2012 – May 2013
First employment: Folio Investing

8.2 DOCTORAL DISSERTATION COMMITTEE CHAIR

CURRENT

- Kyle Canavera
Status: starts in Fall 2016

- Mahmoud Hammad
Status: passed written comprehensive exam
- Reyhaneh Jabbarvand
Status: advanced to candidacy
- Alireza Sadeghi
Status: advanced to candidacy

ALUMNI

- Nariman Mirzaei
Graduation date: August 2016
Dissertation title: Automated Input Generation Techniques for Testing Android Applications
First employment: –
- Ehsan Kouroshfar
Graduation date: May 2016
Dissertation title: An Empirical Study of the Interplay Between Architecture and Software Quality Using Evolutionary History of Software
First employment: –
- Eric Yuan
Graduation date: May 2016
Dissertation title: Architecture-Based Self-Protecting Software Systems
First employment: Aerospace Corporation
- Riyadh Mahmood
Graduation date: May 2015
Dissertation title: An Evolutionary Approach for System Testing of Android Applications
First employment: Harris Corporation
- Naeem Esfahani
Graduation date: August 2014
Dissertation title: Management of Uncertainty in Self-Adaptive Software
First employment: Google Inc.
- Ahmed Elkhodary
Graduation date: December 2011
Dissertation title: A Learning-Based Approach for Engineering Feature-Oriented Self-Adaptive Software Systems
First employment: U.S. Securities and Exchange Commission

8.3 MASTERS DISSERTATION COMMITTEE CHAIR**ALUMNI**

- Deshan A. Cooray
Graduation date: August 2010
Dissertation title: Resisting Reliability Degradation through Proactive Reconfiguration
First employment: Verisign Inc.

8.4 DOCTORAL DISSERTATION COMMITTEE MEMBER**CURRENT**

- Julian Lettner Advisor: Michael Franz UCI

- Vaibhav Saini Advisor: Cristina Lopes UCI

ALUMNI

- Mohammad Abu-Matar Advisor: Hassan Gomaa GMU 2011
- Julie Street, 2011 Advisor: Hassan Gomaa GMU 2011
- Zhaohui Wang Advisor: Angelos Stavrou GMU 2012
- Sander van der Burg Advisor: Eelco Visser Delft University 2013
- Antti Evesti Advisor: Jukka Riekkii University of Oulu 2013
- Ahmed Abu Jbara Advisor: Alexander Levis GMU 2013
- Nan Li Advisor: Jeff Offutt GMU 2014
- Quyen L. Nguyen Advisor: Arun Sood GMU 2014
- John D. McDowall Advisor: Larry Kerschberg GMU 2014
- Jing Guan Advisor: Jeff Offutt GMU 2015

8.5 MASTERS DISSERTATION COMMITTEE MEMBER**ALUMNI**

- Andrea Renika Souza Advisor: Cristina Lopes UCI 2016
- Muhammad Faraz Rafi Advisor: Alexander Levis GMU 2010
- Koji Hashimoto Advisor: Hassan Gomaa GMU 2010
- Xiang Shen Advisor: Joao Sousa GMU 2013

9 FORMAL PRESENTATIONS

- P1.** *Mobile App Security: Detection and Family Identification of the Malice in your Pocket.* Institute for Software Research Forum, UC Irvine, May 2016.
- P2.** *Detection and Family Identification of Android Malware.* Department of Homeland Security's Cyber Security Division R&D Showcase and Technical Workshop, Washington, DC, February 2016.
- P3.** *SIG-Droid: Automated System Input Generation for Android Applications.* 26th IEEE International Symposium on Software Reliability Engineering (ISSRE 2015), Gaithersburg, MD, November 2015.
- P4.** *Detection and Family Identification of Android Malware.* NII Shonan Meeting – Mobile App Store Analytics, Kanagawa, Japan, October 2015.
- P5.** *Automated Detection of Android Inter-Application Vulnerabilities.* DHS SWAMP/SQA PI meeting, Atlanta, May 2015.
- P6.** *A Tool for Automated Detection of Inter-Application Security Vulnerabilities in Android.* National Security Agency, College Park, Maryland, March 2015.
- P7.** *Automated Analysis and Testing of Mobile Software.* University of California Irvine. Computer Science Department. March 2015.
- P8.** *Automated Analysis and Testing of Mobile Software.* University of Southern California. Computer Science Department. February 2015.

- P9.** *Automated Analysis and Testing of Mobile Software.* College of William and Mary. Computer Science Department. February 2015.
- P10.** *Automated Analysis and Testing of Mobile Software.* George Mason University. Computer Science Department. February 2015.
- P11.** *Invited Talk — Automated Detection and Mitigation of Inter-Application Security Vulnerabilities in Android.* 2nd International Workshop on Software Development Lifecycle for Mobile. Hong Kong, China, November 2014.
- P12.** *Automated Mining of Software Component Interactions for Self-Adaptation.* 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014). Hyderabad, India, June 2014.
- P13.** *Keynote — Toward the Making of Software that Learns to Manage Itself.* 27th Brazilian Symposium on Software Engineering (SBES 2013), Brasilia, Brazil, October 2013.
- P14.** *Invited Speaker — Automated Security Testing of Mobile Applications.* FedMobileCamp hosted by NGA/InnoVision, Reston, VA, August 2013.
- P15.** *Invited Talk — A Framework for Improving a Distributed Software System's Deployment Architecture.* Delft University of Technology, Delft, Netherlands, June 2013.
- P16.** *Keynote — The Secret Sauce for Succeeding in your PhD Research and Beyond.* 35th International Conference on Software Engineering (ICSE 2013), Doctoral Symposium track, San Francisco, CA, May 2013.
- P17.** *Automated Security Testing and Analysis of Smartphone Applications.* National Security Agency, George Mason University, Fairfax, VA, August 2012
- P18.** *Automated Security Testing of Android Applications for the Military App Store.* DARPA Computer Science Study Panel, Arlington, VA, April 2012
- P19.** *Invited Talk — Guided Exploration of the Architectural Solution Space in the Face of Uncertainty.* Lockheed Martin Architects Workshop, Littleton, Colorado, August 2011
- P20.** *Taming Uncertainty in Self-Adaptive Software.* 8th joint meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2011), Szeged, Hungary, September 2011
- P21.** *Invited Talk — Engineering Self-Adaptive Software Systems.* Virginia Polytechnic Institute and State University, Falls Church, VA, February 2011
- P22.** *Invited Talk — Engineering Self-Adaptive Software Systems.* Sharif University, Tehran, Iran, December 2010
- P23.** *FUSION: A Framework for Engineering Self-Tuning Self-Adaptive Software Systems.* 18th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2010), Santa Fe, NM, November 2010
- P24.** *Reliability Degradation through Proactive Reconfiguration.* 25th IEEE/ACM International Conference on Automated Software Engineering (ASE 2010), Antwerp, Belgium, September 2010
- P25.** *Utilizing Architectural Styles to Enhance Adaptation Support in Middleware Platforms.* 4th European Conference on Software Architectures (ECSA 2010), Copenhagen, Denmark, August 2010
- P26.** *Context-Driven Optimization of Mobile Service-Oriented Systems for Improving their Resilience.* IEEE International Workshop on Engineering Mobile Service-Oriented Systems (EMSOS 2010), Miami, FL, July 2010

- P27.** *Social Computing Networks: A New Paradigm for Engineering Pervasive Software Systems.* 32nd International Conference on Software Engineering (ICSE 2010), New Ideas and Emerging Results Track, Cape Town, South Africa, May 2010
- P28.** *Self-Architecting Software Systems (SASSY) from QoS-Annotated Activity Models.* International Workshop on Principles of Engineering Service Oriented Systems (PESOS 2009), Vancouver, Canada, May 2009
- P29.** *Component-Level Energy Consumption Estimation for Distributed Java-Based Software Systems.* International Symposium on Component Based Software Engineering (CBSE 2008), Karlsruhe, Germany, October 2008
- P30.** *Dealing with the Crosscutting Structure of Software Architectural Styles.* IEEE International Computer Software and Applications Conference (COMPSAC), Turku, Finland, July 2008
- P31.** *Architecture-Driven Software Mobility in Support of QoS Requirements.* International Workshop on Software Architectures and Mobility (SAM), Leipzig, Germany, May 2008
- P32.** *Effective Realization of Software Architectural Styles with Aspects.* Working IEEE/IFIP Conference on Software Architecture (WICSA 2008), Vancouver, BC, Canada, February 2008
- P33.** *A Framework for Estimating the Impact of a Distributed Software System's Architectural Style on its Energy Consumption.* Working IEEE/IFIP Conference on Software Architecture (WICSA 2008), Vancouver, BC, Canada, February 2008
- P34.** *Architecture-Driven Software Mobility in Support of QoS Requirements.* Dagstuhl Seminar 08031 on Software Engineering for Self-Adaptive Systems, Saarbrücken, Germany, January 2008
- P35.** *Reconceptualizing a Family of Heterogeneous Embedded Systems via Explicit Architectural Support.* International Conference on Software Engineering (ICSE 2007), Minneapolis, Minnesota, May 2007
- P36.** *A User-Centric Framework for Improving a Distributed Software System's Deployment Architecture.* Doctoral track of the Symposium on Foundations of Software Engineering (FSE 2006), Portland, Oregon, November 2006
- P37.** *Tailoring an Architectural Middleware Platform to a Heterogeneous Embedded Environment.* International Workshop on Software Engineering and Middleware (SEM 2006), Portland, Oregon, November 2006
- P38.** *A Decentralized Redeployment Algorithm for Improving the Availability of Distributed Systems.* International Conference on Component Deployment (CD 2005), Grenoble, France, November 2005
- P39.** *Improving Availability in Large, Distributed, Component-Based Systems via Redeployment.* International Conference on Component Deployment (CD 2005), Grenoble, France, November 2005
- P40.** *A User-Centric Approach for Improving a Distributed Software System's Deployment Architecture.* USC Center for Software Engineering Annual Research Review, Los Angeles, California, March 2005
- P41.** *An Extensible Framework for Autonomic Analysis and Improvement of Distributed Deployment Architectures.* ACM SIGSOFT Workshop on Self-Managed Systems (WOSS 2004), Newport Beach, California, October 2004
- P42.** *A Tailorable Environment for Assessing the Quality of Deployment Architectures in Highly Distributed Settings.* Second International Conference on Component Deployment (CD 2004), Edinburgh, Scotland, May 2004
- P43.** *Improving Availability of Distributed Event-Based Systems via Run-Time Monitoring and Analysis.* Workshop on Architecting Dependable Systems (WADS 2004) held in conjunction with

the International Conference on Software Engineering (ICSE 2004), Edinburgh, Scotland, May 2004

- P44.** *Improving System Availability in Distributed Environments*. USC Center for Software Engineering Annual Research Review, Los Angeles, CA, March 2004

10 PROFESSIONAL SERVICE

10.1 EDITORIAL BOARDS AND STEERING COMMITTEES

- S1.** Associate Editor, IEEE Transactions on Software Engineering (February 2014 – present)
- S2.** Associate Editor, Springer Computing Journal (February 2011 – present)
- S3.** Member, Steering Committee, International Symposium on Software Engineering for Adaptive and Self-Managing Systems (June 2015 – present)

10.2 CONFERENCE AND WORKSHOP ORGANIZATION

- S4.** Awards Chair, 39th International Conference on Software Engineering (ICSE 2016), Buenos Aires, Argentina, May 2017.
- S5.** Program Chair, 11th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2016), Austin, Texas, May 2016.
- S6.** Tutorial Co-Chair, 10th Joint Meeting of European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2015), Bergamo, Italy, August 2015.
- S7.** Proceedings Chair, 22nd International Symposium on the Foundations of Software Engineering (FSE 2014), Hong Kong, China, November 2014
- S8.** Tutorial Chair, 11th Working IEEE/IFIP Conference on Software Architecture (WICSA 2014), Sydney, Australia, April 2014
- S9.** Program Chair, 4th ACM SIGSOFT International Symposium on Architecting Critical Systems (ISARCS 2013), Vancouver, Canada, June 2013
- S10.** Internet Chair, 35th International Conference on Software Engineering (ICSE 2013), San Francisco, California, May 2013
- S11.** Publicity Chair, 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2012), Lyon, France, September 2012
- S12.** Workshop Chair, Joint 10th Working IEEE/IFIP Conference on Software Architecture (WICSA 2012) and 6th European Conference on Software Architecture (ECSA 2012), Helsinki, Finland, August 2012
- S13.** Publicity Chair, 5th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2011), Ann Arbor, Michigan, October 3-7 2011
- S14.** Posters Chair, 33rd International Conference on Software Engineering (ICSE 2011), Honolulu, Hawaii, May 21-28, 2011

- S15. Co-editor, special issue of the Journal of Systems and Software on “State of the Art in Self-Adaptive Software Systems”, tentative publication date of December 2011
- S16. North America Regional Editor, International Journal of Software Architecture, 2010-2014
- S17. Co-Organizer, ICAC International Workshop on Self-Organizing Architectures (SOAR 2010), Cambridge, UK, June 7, 2010
- S18. Co-editor, “Self-Organizing Architectures”, Lecture Notes in Computer Science, Springer Verlag, vol. 6090, 300 pages, September 2009, ISBN: 978-3-642-14411-0
- S19. Co-Organizer, WICSA/ECSA International Workshop on Self-Organizing Architectures (SOAR 2009), Cambridge, UK, Sep 14, 2009
- S20. GMU Software Engineering Seminar Series, 2007- 2015
<http://cs.gmu.edu/~smalek/seminar.html>

10.3 PROGRAM COMMITTEE AND PANEL MEMBERSHIP

- S21. Program Committee Member, 39th International Conference on Software Engineering (ICSE 2017), Buenos Aires, Argentina, May 2017.
- S22. Program Committee Member, International Conference on Software Architecture (ICSA 2017), Gothenburg, Sweden, April 2017.
- S23. Program Committee Member, International Workshop on App Market Analytics (WAMA 2016), Seattle, WA, November 2016.
- S24. Program Committee Member, 10th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2016), Augsburg, Germany, September 2016.
- S25. Program Committee Member, 10th European Conference on Software Architecture (ECSA 2016), Istanbul, Turkey, September 2016.
- S26. Program Committee Member, 13th IEEE International Conference on Autonomic Computing (ICAC 2016), Wurzburg, Germany, July 2016.
- S27. Program Committee Member, 38th International Conference on Software Engineering (ICSE 2016), Workshop Proposals, Austin, Texas, May 2016.
- S28. Program Committee Member, IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft 2016), Doctoral Symposium, Austin, Texas, May 2016.
- S29. Program Committee Member, International Workshop on Bringing Architecture Design Thinking into Developers' Daily Activities (BRIDGE 2016), Austin, Texas, May 2016.
- S30. Program Committee Member, 4th International Workshop on Software Engineering for System-of-Systems (SESoS 2016), Austin, Texas, May 2016.
- S31. Program Committee Member, Symposium and Bootcamp on the Science of Security (HotSoS 2016), Pittsburgh, PA, April 2016.
- S32. Program Committee Member, 13th Working IEEE/IFIP Conference on Software Architecture (WICSA 2016) and 10th Federated Conference Series on Component-Based Software Engineering and Software Architecture (CompArch 2016), Venice, Italy, April 2016.
- S33. Program Committee Member, 3rd International Workshop on Software Development Lifecycle for Mobile (DeMobile 2015), Bergamo, Italy, August 2015.

- S34.** Program Committee Member, 9th European Conference on Software Architecture (ECSA 2015), Dubrovnik, Croatia, September 2015.
- S35.** Program Committee Member, 9th IEEE International Conference on Self-Adaptive and Self-Organizing Systems, Cambridge, MA, September 2015.
- S36.** Program Committee Member, 19th International Software Product Line Conference (SPLC 2015): New Directions in Systems and Software Product Line Engineering, Nashville, TN, July 2015.
- S37.** Program Committee Member, Symposium and Bootcamp on the Science of Security (HotSoS 2015), Urbana-Champaign, IL, April 2015.
- S38.** Program Committee Member, 37th International Conference on Software Engineering (ICSE 2015), Florence, Italy, May 2015
- S39.** NSF Panel Member, Computing and Communication Foundations, Arlington, VA, May 2015.
- S40.** Program Committee Member, 12th Working IEEE/IFIP Conference on Software Architecture (WICSA 2015), Montreal, Canada, May 2015
- S41.** Program Committee Member, 10th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2015), Florence, Italy, May 2015
- S42.** Program Committee Member, 9th International Workshop on Models at Runtime (MRT 2014), Valencia, Spain, September 2014.
- S43.** Program Committee Member, 5th Testing Techniques and Experimentation Benchmarks for Event-Driven Software (TESTBEDS 2014), Vasteras, Sweden, September 2014.
- S44.** Program Committee Member, 8th European Conference on Software Architecture (ECSA 2014), Vienna, Austria, August 2014
- S45.** Program Committee Member, IEEE 2nd International Workshop on Engineering Mobile Service Oriented Systems (EMSOS 2014), Anchorage, AL, June 2014.
- S46.** Program Committee Member, 4th International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2014), Hyderabad, India, June 2014.
- S47.** Program Committee Member, 2nd International Workshop on the Engineering of Mobile-Enabled Systems (MOBS 2014), Hyderabad, India, June 2014.
- S48.** Program Committee Member, 36th International Conference on Software Engineering (ICSE 2014), Hyderabad, India, June 2014
- S49.** Program committee Member, 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014), Hyderabad, India, June 2014
- S50.** Program Committee Member, 11th Working IEEE/IFIP Conference on Software Architecture (WICSA 2014), Sydney, Australia, April 2014
- S51.** Program Committee Member, Workshop on Architecting Mobile-Enabled Systems (AMeS 2014), Sydney, Australia, April 2014.
- S52.** Program Committee Member, Coordination Models, Languages and Applications track, 29th ACM Symposium on Applied Computing (SAC 2014), Gyeongju, Korea, March 2014.
- S53.** NSF Panel Member, Secure and Trustworthy Computing, Arlington, VA, March 2014
- S54.** Panelist, American Association for the Advancement of Science (AAAS), Maine Technology Institute Development Loan Program, August 2013

- S55.** Program Committee Member, 7th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2013), Philadelphia, USA, September 2013
- S56.** Program Committee Member, International Workshop on Software Engineering for Systems-of-Systems (SESoS 2013), Montpellier, France, July 2013
- S57.** Program Committee Member, 7th European Conference on Software Architecture (ECSA 2013), Montpellier, France, July 2013
- S58.** Program Committee Member, 3rd International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2013), Rio de Janeiro, Brazil, July 2013.
- S59.** Program Committee Member, International Workshop on the Engineering of Mobile-Enabled Systems (MOBS 2013), San Francisco, CA, May 2013
- S60.** Program Committee Member, 4th International Workshop on Software Engineering for Sensor Network Applications (SESENA 2013), San Francisco, CA, May 2013
- S61.** Program Committee Member, 2nd International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2013), San Francisco, CA, May 2013.
- S62.** NSF Panel Member, Computing and Communication Foundations, Arlington, VA, January 2013
- S63.** Program Committee Member, Coordination Models, Languages and Applications track, 28th ACM Symposium on Applied Computing (SAC 2013), Coimbra, Portugal, January 2013.
- S64.** Program Committee Member, 1st International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2012), Chicago, Illinois, September 2012
- S65.** Program Committee Member, 1st International Workshop on Adaptive Service Ecosystems: Nature and Socially Inspired Solutions (ASENSIS 2012), Lyon, France, September 2012
- S66.** Program Committee Member, 20th International Symposium on the Foundations of Software Engineering (FSE 2012), New Ideas and Emerging Results Track, Research Triangle Park, North Carolina, November 2012
- S67.** Program Committee Member, 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2012), Lyon, France, September 2012
- S68.** Program Committee Member, Joint 10th Working IEEE/IFIP Conference on Software Architecture (WICSA 2012) and 6th European Conference on Software Architecture (ECSA 2012), Helsinki, Finland, August 2012
- S69.** Program Committee Member, Workshop on Architectures and Platforms for Knowledge Discovery from Data, Helsinki, Finland, August 2012
- S70.** Program Committee Member, 15th International ACM SIGSOFT Symposium on Component Based Software Engineering (CBSE 2012), Bertinoro, Italy, June 2012
- S71.** Program Committee Member, 2nd Workshop on Developing Tools as Plug-ins (TOPI 2012), Zurich, Switzerland, June 2012
- S72.** Program Committee Member, 34th International Conference on Software Engineering (ICSE 2012), New Ideas and Emerging Results Track, Zurich, Switzerland, June 2012
- S73.** Program Committee Member, 5th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2011), Ann Arbor, Michigan, October 3-7 2011
- S74.** Program Committee Member, 25th Brazilian Symposium on Software Engineering (SBES), São Paulo, Brazil, September 26-30 2011

- S75. NSF Panel Member, Computer Networks and Systems core, Arlington, VA, March 2011
- S76. Program Committee Member, 5th European Conference on Software Architecture (ECSA 2010), Essen, Germany, September 13-16 2011
- S77. Program Committee Member, 33rd International Conference on Software Engineering (ICSE 2011), ACM Student Research Competition, Honolulu, Hawaii, May 21-28 2011
- S78. Program Committee Member, 1st International Workshop on Engineering Mobile Service Oriented Systems (EMSOS), Miami, Florida, July 5 2010
- S79. Program Committee Member, 4th European Conference on Software Architecture (ECSA 2010), Copenhagen, Denmark, August 23-26, 2010
- S80. Program Committee Member, 33rd International Conference on Software Engineering (ICSE 2011), Technical/Research Track, Honolulu, Hawaii, May 21-28, 2011
- S81. Program Committee Member, 3rd IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2009), San Francisco, CA, September 14-18, 2009
- S82. NSF Panel Member, Cyber Physical Systems, Arlington, VA, May 2009
- S83. Program Committee Member, International Workshop on Software Architectures and Mobility (SAM 2009), Vancouver, Canada, May 2009
- S84. Program Committee Member, Special Session on Software Architecture for Pervasive Systems (SAPS), 34th Euromicro Conference in Parma, Italy, September 3-5, 2008
- S85. Program Committee Member, International Conference on Software Engineering Research and Practice (SERP'06), Las Vegas, Nevada, June 2006
- S86. Program Committee Member, ISR Graduate Student Research Symposium, Irvine, California, June 2005
- S87. Program Committee Member, 39th Hawaiian International Conference on System Sciences, Kauai, Hawaii, January 2006

10.4 REFEREE AND REVIEWER SERVICE

- S88. Journal of Computer Security, 2014
- S89. Elsevier Journal of Pervasive and Mobile Computing, 2014
- S90. Journal of Computer Science and Technology, 2012
- S91. ACM Transactions on Autonomous and Adaptive Systems, 2010, 2013, 2014, 2015
- S92. International Journal of Software and Systems Modeling, 2010
- S93. Journal of Empirical Software Engineering, 2010
- S94. IEEE Computer, 2009
- S95. Journal of Systems and Software, 2009, 2010, 2011, 2012
- S96. ACM Transactions on Software Engineering and Methodology, 2008, 2011, 2012, 2013
- S97. European Journal of Information Systems, 2008
- S98. Enterprise Information Systems, 2008
- S99. ACM Computing Surveys, 2007, 2008, 2009

- S100.** International Software Technology Journal, 2007, 2010, 2016
- S101.** IEEE Transactions on Software Engineering, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014
- S102.** IET Software, 2007, 2008, 2009
- S103.** IEEE Software, 2006, 2007, 2008
- S104.** International Working Conference on Software Architecture, outside reviewer, 2007
- S105.** International Working Conference on Component Deployment, outside reviewer, 2005
- S106.** International Workshop on Software Engineering and Middleware, outside reviewer, 2005
- S107.** International Symposium on Component-based Software Engineering, outside reviewer, 2004 - 2006
- S108.** Twin Workshops on Architecting Dependable Systems (WADS), outside reviewer, May 2004
- S109.** ACM SIGSOFT Workshop on Self-Managed Systems (WOSS), outside reviewer, October 2004

11 UNIVERSITY SERVICE

- U1.** Chair, Software Engineering Steering Committee, School of Information and Computer Sciences, UCI
2015 – present
- U2.** Member, Graduate Admissions and Recruitment Day Committee, Informatics Department, UCI
2015 – present
- U3.** Member, Development Committee, Informatics Department, UCI
2015 – present
- U4.** Member, Faculty Recruitment, Computer Science Department, GMU
2013, 2015
- U5.** Member, PhD Admission, Computer Science Department, GMU
2012 – 2015
- U6.** Chair, Software Engineering Seminar Series, Computer Science Department, GMU
2008 – 2015
- U7.** Member, MS-SWE Admissions & Policy, Computer Science Department, GMU
2007 – 2015

12 PROFESSIONAL ASSOCIATIONS

- Association for Computing Machinery (ACM)
- ACM Special Interest Group on Software Engineering (SIGSOFT)
- Institute of Electrical and Electronics Engineers (IEEE)

13 CONSULTING

- March 2011 – Present Institute for Defense Analyses

- June 2013 – Present Quandary Peak Research