

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>	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 2019 – present	Professor Department of Informatics Donald Bren School of Information and Computer Sciences University of California, Irvine
July 2018 – present	Director Institute for Software Research University of California, Irvine (July 2015 – June 2018 Faculty Member)
August 2007 – present	Director Software Engineering and Analysis Laboratory University of California, Irvine (August 2007 – June 2015 at George Mason University)
July 2015 – June 2019	Associate Professor Department of Informatics Donald Bren School of Information and Computer Sciences University of California, Irvine
August 2013 – June 2015	Associate Professor Computer Science Department Volgenau School of Engineering George Mason University
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
- Mobile Computing

4 HONORS, AWARDS, AND STATISTICS

- H-index: 40
(scholar.google.com)
- Citations: 6,201
(scholar.google.com)
- Mason Emerging Researcher/Scholar/Creator Award 2013
George Mason University
- NSF CAREER Award 2013
- 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)
“Constructing a Community-Wide Software Architecture Infrastructure”
Duration: 9/1/2018 – 8/31/2021
Investigators: Sam Malek (PI at UCI), Joshua Garcia (Co-PI at UCI), Nenad Medvidovic (Lead PI at USC), Mehdi Mirakhorli (PI at RIT), Rick Kazman (PI at UH), Yuanfang Cai (PI at Drexel), and Lu Xiao (PI at Stevens)
Award Amount: \$1,660,000
- G2.** Federal Bureau of Investigation (FBI)
“Analysis of Android Application Packages for Security-Relevant Properties”
Duration: 9/26/2016 – 9/25/2017
Investigators: Sam Malek (PI)
Award Amount: \$118,964
- G3.** National Science Foundation (NSF)
“Planning and Prototyping a Community-Wide Software Architecture Instrument”
Duration: 8/1/2016 – 7/31/2018
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
- G4.** 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
- G5.** 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
- G6.** 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
- G7.** 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
- G8.** 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
- G9.** 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
- G10.** 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
- G11.** 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
- G12.** National Science Foundation (NSF)
“CAREER: A Mining-Based Approach for Consistent and Timely Adaptation of Component-Based Software”
Duration: 2/1/2013 – 1/31/2019
Investigator: Sam Malek (Sole PI)
Award Amount: \$451,481
- G13.** 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
- G14.** 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

- G15.** 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
- G16.** 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
- G17.** 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
- G18.** 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
- G19.** 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
- G20.** 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.** Mahmoud Hammad, Hamid Bagheri, and Sam Malek. DelDroid: An Automated Approach for Determination and Enforcement of Least-Privilege Architecture in Android. *Journal of Systems and Software (JSS)*, Special Section on Architecting Autonomous and Smart Systems. Vol 149, March 2019.

- J2.** Joshua Garcia, Mahmoud Hammad, and Sam Malek. "Lightweight, Obfuscation-Resilient Detection and Family Identification of Android Malware." *ACM Transactions on Software Engineering and Methodology (TOSEM)*, Vol. 26, No. 3, January 2018. (Journal First)
- J3.** 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*, Pages 1-20, November 2017.
- J4.** Alireza Sadeghi, Hamid Bagheri, Joshua Garcia, and Sam Malek. "A Taxonomy and Qualitative Comparison of Program Analysis Techniques for Security Assessment of Android Software." *IEEE Transactions on Software Engineering (TSE)*, Vol. 43, No. 6, June 2017. (Journal First)
- J5.** Alireza Sadeghi, Naeem Esfahani, and Sam Malek. "Ensuring the Consistency of Adaptation through Inter- and Intra-Component Dependency Analysis." *ACM Transactions on Software Engineering and Methodology (TOSEM)*, Vol. 26, No. 1, May 2017. (Journal First)
- J6.** 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.
- J7.** 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.
- J8.** 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.
- J9.** 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.
- J10.** 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.
- J11.** 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.
- J12.** 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.
- J13.** 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.
- J14.** 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.
- J15.** 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.

- J16.** 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.
- J17.** 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.
- J18.** 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.
- J19.** 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.
- J20.** 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.** Reyhaneh Jabbarvand, Jun-Wei Lin, and Sam Malek. "Search-Based Energy Testing of Android." In *proceedings of the 41st International Conference on Software Engineering (ICSE 2019)*, Montreal, Canada, May 2019. (21% acceptance rate)
- C2.** Negar Ghorbani, Joshua Garcia, and Sam Malek. "Detection and Repair of Architectural Inconsistencies in Java." In *proceedings of the 41st International Conference on Software Engineering (ICSE 2019)*, Montreal, Canada, May 2019. (21% acceptance rate)
- C3.** Mahmoud Hammad, Joshua Garcia, and Sam Malek. "SALMA: Self-Protection of Android Systems from Inter-Component Communication Attacks." In *proceedings of the 33rd IEEE/ACM International Conference on Automated Software Engineering (ASE 2018)*, Montpellier, France, September 2018. (19% acceptance rate)
- C4.** Hamid Bagheri, Jianghai Wang, Jarod Aerts, and Sam Malek. "Efficient, Evolutionary Security Analysis of Interacting Android Apps." In *proceedings of the 34th IEEE International Conference on Software Maintenance and Evolution (ICSME 2018)*, Madrid, Spain, September 2018. (25% acceptance rate - best paper nominee)
- C5.** Alireza Sadeghi, Reyhaneh Jabbarvand, Negar Ghorbani, Hamid Bagheri, and Sam Malek. "A Temporal Permission Analysis and Enforcement Framework for Android." In *proceedings of the 40th International Conference of Software Engineering (ICSE 2018)*, Gothenburg, Sweden, May 2018. (21% acceptance rate).
- C6.** Jun-Wei Lin, Reyhaneh Jabbarvand, Joshua Garcia, and Sam Malek. "Nemo: Multi-Criteria Test-Suite Minimization with Integer Nonlinear Programming." In *proceedings of the 40th International Conference of Software Engineering (ICSE 2018)*, Gothenburg, Sweden, May 2018. (21% acceptance rate).
- C7.** Mahmoud Hammad, Joshua Garcia, and Sam Malek. "A Large-Scale Empirical Study on the Effects of Code Obfuscations on Android Apps and Anti-Malware Products." In *proceedings of the 40th International Conference of Software Engineering (ICSE 2018)*, Gothenburg, Sweden, May 2018. (21% acceptance rate).

- C8.** Joshua Garcia, Mahmoud Hammad, Negar Ghorbani, and Sam Malek. “Automatic Generation of Inter-Component Communication Exploits for Android Applications.” In *proceedings of the 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2017)*, Paderborn, Germany, September 2017. (24% acceptance rate)
- C9.** Alireza Sadeghi, Reyhaneh Jabbarvand, and Sam Malek. “PATDroid: Permission-Aware GUI Testing of Android.” In *proceedings of the 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2017)*, Paderborn, Germany, September 2017. (24% acceptance rate)
- C10.** Reyhaneh Jabbarvand and Sam Malek. “ μ Droid: An Energy-Aware Mutation Testing Framework for Android.” In *proceedings of the 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2017)*, Paderborn, Germany, September 2017. (24% acceptance rate)
- C11.** Alireza Sadeghi, Naeem Esfahani and Sam Malek. “Mining Mobile App Markets for Prioritization of Security Assessment Effort.” In *proceedings of the 2nd International Workshop on App Market Analytics*, Paderborn, Germany, September 2017.
- C12.** Mahmoud Hammad, Hamid Bagheri, and Sam Malek. “DELDroid: Determination and Enforcement of Least-Privilege Architecture in Android.” In *proceedings of the IEEE International Conference on Software Architecture (ICSA 2017)*, Gothenburg, Sweden, April 2017. (22% acceptance rate – best paper nominee)
- C13.** 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)
- C14.** 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 for full papers)
- C15.** 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 Testing and Analysis (ISSTA 2016)*, Saarbrücken, Germany, July 2016. (25% acceptance rate)
- C16.** 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)
- C17.** 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)
- C18.** 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)
- C19.** 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)

- C20.** 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 – best paper nominee)
- C21.** 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)
- C22.** 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.
- C23.** 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.
- C24.** 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)
- C25.** 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.
- C26.** 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 – best paper nominee)
- C27.** 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)
- C28.** 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.
- C29.** 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)
- C30.** 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)
- C31.** 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)

- C32.** 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.
- C33.** 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.
- C34.** 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.
- C35.** 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 – best paper nominee)
- C36.** 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)
- C37.** 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)
- C38.** 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)
- C39.** 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)
- C40.** 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)
- C41.** 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.
- C42.** 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.
- C43.** 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)

- C44.** 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)
- C45.** 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)
- C46.** 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.
- C47.** 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.
- C48.** 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)
- C49.** 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)
- C50.** 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)
- C51.** 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)
- C52.** 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.
- C53.** 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)
- C54.** 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.
- C55.** 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)

- C56.** Chiyoung 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.
- C57.** 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)
- C58.** 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.
- C59.** 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.
- C60.** 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.
- C61.** 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.
- C62.** 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.
- C63.** 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.
- C64.** 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.
- C65.** 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.
- C66.** 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)
- C67.** 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.
- C68.** 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)
- C69.** Sam Malek, Chiyong 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.
- C70.** 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.
- C71.** Sam Malek, Chiyong 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.
- C72.** 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.
- C73.** 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.
- C74.** 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.
- C75.** 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.
- C76.** 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.
- C77.** 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.
- C78.** 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, Hamid Bagheri, Joshua Garcia, and Alireza Sadeghi. "Security and Software Engineering." In *Handbook of Software Engineering*, Editors Kyo Chul Kang, Richard Taylor, and Sungdeok Cha, Springer, 1st edition, 2019.

- B2.** Danny Weyns, Nelly Bencomo, Radu Calinescu, Javier Camara, Carlo Ghezzi, Vincenzo Grassi, Larse Grunske, Paola Inverardi, Jean-Marc Jezequel, Sam Malek, Raffaella Mirandola, Marco Mori, Giordano Tamburrelli. “Perpetual Assurances for Self-Adaptive Systems.” In *Software Engineering for Self-Adaptive Systems 3*, Editors R. de Lemos, D. Garlan, C. Ghezzi, and H. Giese, Lecture Notes in Computer Science, Springer, 2017.
- B3.** 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.
- B4.** 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.
- B5.** 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.
- B6.** Rogerio de Lemos, Holger Giese, Hausi Muller, Mary Shaw, Jesper Andersson, Luciano Baresi, Basil Becker, Nelly Bencomo, Yuriy Brun, Bojan Cikiric, Ron Desmarais, Schahram Dustdar, Gregor Engels, Kurt Geihs, Karl M. Goeschka, Alessandra Gorla, Vincenzo Grassi, Paola 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.
- B7.** 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.
- B8.** 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.
- B9.** 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, Spring 2017, Spring 2018, Spring 2019
Upper-division undergraduate course for several majors within ICS
- **INF 221 – Software Architecture**
Terms: Fall 2016, Fall 2017, Fall 2018
Graduate-level core course for Software Engineering M.S. and Ph.D. students
- **INF 291S – Literature Survey in Software Engineering**
Terms: Fall 2017, Spring 2018, Fall 2018, Spring 2019
Graduate-level seminar 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

ALUMNI

- Joshua Garcia
July 2014 – June 2018
First employment: Assistant Professor, University of California Irvine
- Hamid Bagheri
September 2013 – August 2016
First employment: Assistant Professor, University of Nebraska Lincoln
- Yonghee Shin
August 2012 – May 2013
First employment: Folio Investing

8.2 DOCTORAL DISSERTATION COMMITTEE CHAIR

CURRENT

- Negar Ghorbani
Status: advanced to candidacy
- Reyhaneh Jabbarvand
Status: passed topic proposal
- Jun-Wei Lin
Status: advanced to candidacy
- Navid Salehnamadi
Status: started in Fall 2017
- Faraz Yazdani
Status: started in Fall 2018
- Abdulaziz Alshayban
Status: started in Fall 2018

ALUMNI

- Mahmoud Hammad
Graduation date: August 2018
First employment: Assistant Professor, Jordan University of Science and Technology

- Alireza Sadeghi
Graduation date: December 2017
Dissertation title: Efficient Permission-Aware Analysis of Android Apps
First employment: Google Inc.
- Nariman Mirzaei
Graduation date: August 2016
Dissertation title: Automated Input Generation Techniques for Testing Android Applications
First employment: Videology
- 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: Appian Corporation
- 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

- | | | | |
|------------------|-------------------------|-----|---|
| • Julian Lettner | Advisor: Michael Franz | UCI | - |
| • Vaibhav Saini | Advisor: Cristina Lopes | UCI | - |
| • Rohan Achar | Advisor: Cristina Lopes | UCI | - |
| • Di Yang | Advisor: Cristina Lopes | UCI | - |
| • Yang Feng | Advisor: James Jones | UCI | - |

• Alexios Voulimeneas	Advisor: Michael Franz	UCI	-
• Gabriel Moreno	Advisor: David Garlan	CMU	2017
• Hsin-Chung Chen	Advisor: Pai Chou	UCI	2016
• Jing Guan	Advisor: Jeff Offutt	GMU	2015
• John D. McDowall	Advisor: Larry Kerschberg	GMU	2014
• Quyen L. Nguyen	Advisor: Arun Sood	GMU	2014
• Nan Li	Advisor: Jeff Offutt	GMU	2014
• Ahmed Abu Jbara	Advisor: Alexander Levis	GMU	2013
• Antti Evesti	Advisor: Jukka Riekkii	University of Oulu	2013
• Sander van der Burg	Advisor: Eelco Visser	Delft University	2013
• Zhaohui Wang	Advisor: Angelos Stavrou	GMU	2012
• Julie Street, 2011	Advisor: Hassan Gomaa	GMU	2011
• Mohammad Abu-Matar	Advisor: Hassan Gomaa	GMU	2011

8.5 MASTERS DISSERTATION COMMITTEE MEMBER

• Thomas Kwak	Advisor: Andre van der Hoek	UCI	2017
• Andrea Renika Souza	Advisor: Cristina Lopes	UCI	2016
• Xiang Shen	Advisor: Joao Sousa	GMU	2013
• Muhammad Faraz Rafi	Advisor: Alexander Levis	GMU	2010
• Koji Hashimoto	Advisor: Hassan Gomaa	GMU	2010

9 FORMAL PRESENTATIONS

- P1.** *Invited talk — Mining Architectural Information to Stem Technical Debt*, Google, Venice, CA, June 2019.
- P2.** *Invited talk — Mobile Application Security*. CPRI-ISR IoT Security Symposium, Irvine, CA, May 2019.
- P3.** *Invited talk — Testing and Analysis Techniques for Improving the Quality of Android Apps*. Google, Mountain View, CA, March 2019.
- P4.** *Keynote — The Threat in Your Pocket: Trends, Challenges, and Solutions in Mobile Application Security*. 25th Australasian Software Engineering Conference (ASWEC) and Australasian Software Week (ASW), November 2018.
- P5.** *Advancing Energy Testing of Android Apps*. Futurewei Academia Test Forum. Dallas, TX, September 2018.
- P6.** *Missteps in Framework Design: Consequences and Solutions*. Institute for Software Research Forum, UC Irvine, June 2018.
- P7.** *Mining Mobile App Markets for Prioritization of Security Assessment Effort*. International Workshop on App Market Analytics (WAMA 2017), Paderborn, Germany, September 2017.

- P8.** *Tools for Automated Detection and Assessment of Security Vulnerabilities in Mobile Applications.* Department of Homeland Security's Cyber Security Division R&D Showcase and Technical Workshop, Washington DC, July 2017.
- P9.** *Keynote — Android Security from a Software Architectural Perspective.* IEEE International Conference on Software Architecture (ICSA 2017), Gothenburg, Sweden, April 2017.
- P10.** *Energy-Aware Test-Suite Minimization for Android Apps.* International Symposium on Software Testing and Analysis (ISSTA 2016), Saarbrücken, Germany, July 2016.
- P11.** *Mobile App Security: Detection and Family Identification of the Malice in your Pocket.* Institute for Software Research Forum, UC Irvine, May 2016.
- P12.** *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.
- P13.** *SIG-Droid: Automated System Input Generation for Android Applications.* 26th IEEE International Symposium on Software Reliability Engineering (ISSRE 2015), Gaithersburg, MD, November 2015.
- P14.** *Detection and Family Identification of Android Malware.* NII Shonan Meeting – Mobile App Store Analytics, Kanagawa, Japan, October 2015.
- P15.** *Automated Detection of Android Inter-Application Vulnerabilities.* DHS SWAMP/SQA PI meeting, Atlanta, May 2015.
- P16.** *A Tool for Automated Detection of Inter-Application Security Vulnerabilities in Android.* National Security Agency, College Park, Maryland, March 2015.
- P17.** *Automated Analysis and Testing of Mobile Software.* University of California Irvine. Computer Science Department. March 2015.
- P18.** *Automated Analysis and Testing of Mobile Software.* University of Southern California. Computer Science Department. February 2015.
- P19.** *Automated Analysis and Testing of Mobile Software.* College of William and Mary. Computer Science Department. February 2015.
- P20.** *Automated Analysis and Testing of Mobile Software.* George Mason University. Computer Science Department. February 2015.
- P21.** *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.
- P22.** *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.
- P23.** *Keynote — Toward the Making of Software that Learns to Manage Itself.* 27th Brazilian Symposium on Software Engineering (SBES 2013), Brasilia, Brazil, October 2013.
- P24.** *Invited Speaker — Automated Security Testing of Mobile Applications.* FedMobileCamp hosted by NGA/InnoVision, Reston, VA, August 2013.
- P25.** *Invited Talk — A Framework for Improving a Distributed Software System's Deployment Architecture.* Delft University of Technology, Delft, Netherlands, June 2013.
- P26.** *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.

- P27. *Automated Security Testing and Analysis of Smartphone Applications*. National Security Agency, George Mason University, Fairfax, VA, August 2012
- P28. *Automated Security Testing of Android Applications for the Military App Store*. DARPA Computer Science Study Panel, Arlington, VA, April 2012
- P29. *Invited Talk — Guided Exploration of the Architectural Solution Space in the Face of Uncertainty*. Lockheed Martin Architects Workshop, Littleton, Colorado, August 2011
- P30. *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
- P31. *Invited Talk — Engineering Self-Adaptive Software Systems*. Virginia Polytechnic Institute and State University, Falls Church, VA, February 2011
- P32. *Invited Talk — Engineering Self-Adaptive Software Systems*. Sharif University, Tehran, Iran, December 2010
- P33. *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
- P34. *Reliability Degradation through Proactive Reconfiguration*. 25th IEEE/ACM International Conference on Automated Software Engineering (ASE 2010), Antwerp, Belgium, September 2010
- P35. *Utilizing Architectural Styles to Enhance Adaptation Support in Middleware Platforms*. 4th European Conference on Software Architectures (ECSA 2010), Copenhagen, Denmark, August 2010
- P36. *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
- P37. *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
- P38. *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
- P39. *Component-Level Energy Consumption Estimation for Distributed Java-Based Software Systems*. International Symposium on Component Based Software Engineering (CBSE 2008), Karlsruhe, Germany, October 2008
- P40. *Dealing with the Crosscutting Structure of Software Architectural Styles*. IEEE International Computer Software and Applications Conference (COMPSAC), Turku, Finland, July 2008
- P41. *Architecture-Driven Software Mobility in Support of QoS Requirements*. International Workshop on Software Architectures and Mobility (SAM), Leipzig, Germany, May 2008
- P42. *Effective Realization of Software Architectural Styles with Aspects*. Working IEEE/IFIP Conference on Software Architecture (WICSA 2008), Vancouver, BC, Canada, February 2008
- P43. *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
- P44. *Architecture-Driven Software Mobility in Support of QoS Requirements*. Dagstuhl Seminar 08031 on Software Engineering for Self-Adaptive Systems, Saarbrücken, Germany, January 2008

- P45.** *Reconceptualizing a Family of Heterogeneous Embedded Systems via Explicit Architectural Support.* International Conference on Software Engineering (ICSE 2007), Minneapolis, Minnesota, May 2007
- P46.** *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
- P47.** *Tailoring an Architectural Middleware Platform to a Heterogeneous Embedded Environment.* International Workshop on Software Engineering and Middleware (SEM 2006), Portland, Oregon, November 2006
- P48.** *A Decentralized Redeployment Algorithm for Improving the Availability of Distributed Systems.* International Conference on Component Deployment (CD 2005), Grenoble, France, November 2005
- P49.** *Improving Availability in Large, Distributed, Component-Based Systems via Redeployment.* International Conference on Component Deployment (CD 2005), Grenoble, France, November 2005
- P50.** *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
- P51.** *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
- P52.** *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
- P53.** *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
- P54.** *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, ACM Transactions on Software Engineering and Methodology (March 2018 – present)
- S2.** Associate Editor, ACM Transactions on Autonomous and Adaptive Systems (Nov 2017 – present)
- S3.** Associate Editor, Springer Computing Journal (February 2011 – present)
- S4.** Member, Steering Committee, IEEE International Conference on Software Architecture (April 2019 – present)

- S5. Member, Steering Committee, International Symposium on Software Engineering for Adaptive and Self-Managing Systems (June 2015 – May 2019)
- S6. Associate Editor, IEEE Transactions on Software Engineering (February 2014 – February 2018)

10.2 CONFERENCE AND WORKSHOP ORGANIZATION

- S7. Program Co-Chair, IEEE International Conference on Software Architecture (ICSA 2020), Salvador, Brazil, March 2020.
- S8. Technical Briefings Co-Chair, 42nd International Conference on Software Engineering (ICSE 2020), Seoul, South Korea, May 2020.
- S9. Co-Organizer, 2nd International Workshop on Advances in Mobile App Analysis (A-Mobile 2019), San Diego, CA, November 2019.
- S10. Co-Organizer, 2nd International Workshop on Establishing a Community-Wide Infrastructure for Architecture-Based Software Engineering (ECASE 2019), Montreal, Canada, May 2019.
- S11. Co-Organizer, International Workshop on Advances in Mobile App Analysis (A-Mobile 2018), Montpellier, France, September 2018.
- S12. Program Co-Chair, 5th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MobileSoft 2018), Visions Track, Gothenburg, Sweden, May 2018.
- S13. Co-Organizer, NSF Sponsored Workshop on Infrastructures and Instruments for Software Architecture (REINFORCE), Urbana-Champaign, Illinois, October 2017.
- S14. Program Co-Chair, 11th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2017), Tucson, Arizona, September 2017.
- S15. Awards Chair, 39th International Conference on Software Engineering (ICSE 2016), Buenos Aires, Argentina, May 2017.
- S16. Program Co-Chair, International Workshop on Establishing the Community-Wide Infrastructure for Architecture-Based Software Engineering (ECASE 2017), Buenos Aires, Argentina, May 2017.
- S17. Program Chair, 11th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2016), Austin, Texas, May 2016.
- S18. 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.
- S19. Proceedings Chair, 22nd International Symposium on the Foundations of Software Engineering (FSE 2014), Hong Kong, China, November 2014
- S20. Tutorial Chair, 11th Working IEEE/IFIP Conference on Software Architecture (WICSA 2014), Sydney, Australia, April 2014
- S21. Program Chair, 4th ACM SIGSOFT International Symposium on Architecting Critical Systems (ISARCS 2013), Vancouver, Canada, June 2013
- S22. Internet Chair, 35th International Conference on Software Engineering (ICSE 2013), San Francisco, California, May 2013

- S23.** Publicity Chair, 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2012), Lyon, France, September 2012
- S24.** 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
- S25.** Publicity Chair, 5th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2011), Ann Arbor, Michigan, October 3-7 2011
- S26.** Posters Chair, 33rd International Conference on Software Engineering (ICSE 2011), Honolulu, Hawaii, May 21-28, 2011
- S27.** 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
- S28.** North America Regional Editor, International Journal of Software Architecture, 2010-2014
- S29.** Co-Organizer, ICAC International Workshop on Self-Organizing Architectures (SOAR 2010), Cambridge, UK, June 7, 2010
- S30.** Co-editor, “Self-Organizing Architectures”, Lecture Notes in Computer Science, Springer Verlag, vol. 6090, 300 pages, September 2009, ISBN: 978-3-642-14411-0
- S31.** Co-Organizer, WICSA/ECSA International Workshop on Self-Organizing Architectures (SOAR 2009), Cambridge, UK, Sep 14, 2009
- S32.** GMU Software Engineering Seminar Series, 2007- 2015
<http://cs.gmu.edu/~smalek/seminar.html>

10.3 PROGRAM COMMITTEE AND PANEL MEMBERSHIP

- S33.** Program Committee Member, 42nd ACM/IEEE International Conference on Software Engineering (ICSE 2020), Seoul, South Korea, May 2020.
- S34.** Program Committee Member, 2nd International Workshop on Software Security from Design to Deployment (SEAD 2019), San Diego, CA, November 2019.
- S35.** Program Committee Member, 14th European Conference on Software Architecture (ECSA 2019), Paris, France, September 2019.
- S36.** Program Committee Member, 10th International Workshop on Automated Software Testing (A-Test 2019), Tallinn, Estonia, August 2019.
- S37.** Program Committee Member, 2nd International Conference on Science of Cyber Security (SciSec 2019), Nanjing, China, August 2019.
- S38.** Program Committee Member, 41st ACM/IEEE International Conference on Software Engineering (ICSE 2019), Montreal, Canada, May 2019.
- S39.** Program Committee Member, 6th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESOFT 2019), Montreal, Canada, May 2019.
- S40.** Program Committee Member, 14th Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2019), Doctoral Track, Montreal, Canada, May 2019.
- S41.** Program Committee Member, 1st International Workshop on Self-Protecting Systems (SPS 2019), Umea, Sweden, April 2019.

- S42. Program Committee Member, 2nd International Workshop on User Interface Test Automation and Testing Techniques for Event-Based Software (INTUITESTBEDS 2019), Xi'an, China, April 2019.
- S43. Program Committee Member, IEEE International Conference on Software Architecture (ICSA 2019), March, 2019, Hamburg, Germany.
- S44. Program Committee Member, 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2018), Lake Buena Vista, Florida, November 2018.
- S45. Program Committee Member, 1st International Workshop on Architectural Knowledge for Self-Adaptive Systems (AKSAS 2018), Madrid, Spain, September 2018.
- S46. Program Committee Member, 12th Workshop on Distributed Software Development, Software Ecosystems and Systems-of-Systems (WDES 2018), Madrid, Spain, September 2018.
- S47. Program Committee Member, 12th IEEE International Conference on Adaptive and Self-Organizing Systems (SASO 2018), Trento, Italy, September 2018.
- S48. Program Committee Member, 12th European Conference on Software Architecture (ECSA 2018), Madrid, Spain, September 2018.
- S49. Program Committee Member, 12th Workshop on Distributed Software Development, Software Ecosystems and Systems-of-Systems (WDES 2018), Madrid, Spain, September 2018.
- S50. Program Committee Member, 1st International Workshop on Architecture Knowledge for Self-Adaptive Systems (AKSAS 2018), Madrid, Spain, September 2018.
- S51. Program Committee Member, 4th International Workshop on User-Interface Test Automation and 8th International Workshop on Testing Techniques for Event-based Software (INTUITESTBEDS 2018), Amsterdam, Netherlands, July 2018.
- S52. Program Committee Member, 40th International Conference on Software Engineering (ICSE 2018), Demonstrations Track, Gothenburg, Sweden, May 2018.
- S53. Program Committee Member, 40th International Conference on Software Engineering (ICSE 2018), Software Engineering in Society Track, Gothenburg, Sweden, May 2018.
- S54. Program Committee Member, 5th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESOFT 2018), Gothenburg, Sweden, May 2018.
- S55. Program Committee Member, 13th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2018), Gothenburg, Sweden, May 2018.
- S56. Program Committee Member, 1st International Workshop on Security Awareness from Design to Deployment (SEAD 2018), Gothenburg, Sweden, May 2018.
- S57. Program Committee Member, IEEE International Conference on Software Architecture (ICSA 2018), Seattle, USA, April 2018.
- S58. Program Committee Member, 11th European Conference on Software Architecture (ECSA 2017), Canterbury, UK, September 2017.
- S59. Program Committee Member, 2nd Workshop on Engineering Collective Adaptive Systems (eCAS 2017), Tucson, Arizona, September 2017.
- S60. Search Committee Member, Editor in Chief Search Committee for the ACM Transactions on Autonomous and Adaptive Systems, January 2017-June 2017

- S61.** Program Committee Member, 4th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESOFT 2017), Buenos Aires, Argentina, May 2017.
- S62.** Program Committee Member, 39th International Conference on Software Engineering (ICSE 2017), Buenos Aires, Argentina, May 2017.
- S63.** Program Committee Member, Joint 5th International Workshop on Software Engineering for Systems-of-Systems and 11th Workshop on Distributed Software Development, Software Ecosystems and Systems-of-Systems (SESOS/WDES 2017), Buenos Aires, Argentina, May 2017.
- S64.** Program Committee Member, 12th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2017), Buenos Aires, Argentina, May 2017.
- S65.** Program Committee Member, International Conference on Software Architecture (ICSA 2017), Gothenburg, Sweden, April 2017.
- S66.** Program Committee Member, International Workshop on App Market Analytics (WAMA 2016), Seattle, WA, November 2016.
- S67.** NSF Panel Member, Computing and Communication Foundations, Arlington, VA, September 2016.
- S68.** Program Committee Member, 10th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2016), Augsburg, Germany, September 2016.
- S69.** Program Committee Member, 10th European Conference on Software Architecture (ECSA 2016), Istanbul, Turkey, September 2016.
- S70.** Program Committee Member, 13th IEEE International Conference on Autonomic Computing (ICAC 2016), Wurzburg, Germany, July 2016.
- S71.** Program Committee Member, 38th International Conference on Software Engineering (ICSE 2016), Workshop Proposals, Austin, Texas, May 2016.
- S72.** Program Committee Member, IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft 2016), Doctoral Symposium, Austin, Texas, May 2016.
- S73.** Program Committee Member, International Workshop on Bringing Architecture Design Thinking into Developers' Daily Activities (BRIDGE 2016), Austin, Texas, May 2016.
- S74.** Program Committee Member, 4th International Workshop on Software Engineering for System-of-Systems (SESoS 2016), Austin, Texas, May 2016.
- S75.** Program Committee Member, Symposium and Bootcamp on the Science of Security (HotSoS 2016), Pittsburgh, PA, April 2016.
- S76.** 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.
- S77.** Program Committee Member, 3rd International Workshop on Software Development Lifecycle for Mobile (DeMobile 2015), Bergamo, Italy, August 2015.
- S78.** Program Committee Member, 9th European Conference on Software Architecture (ECSA 2015), Dubrovnik, Croatia, September 2015.
- S79.** Program Committee Member, 9th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2015), Cambridge, MA, September 2015.

- S80.** Program Committee Member, 19th International Software Product Line Conference (SPLC 2015): New Directions in Systems and Software Product Line Engineering, Nashville, TN, July 2015.
- S81.** Program Committee Member, Symposium and Bootcamp on the Science of Security (HotSoS 2015), Urbana-Champaign, IL, April 2015.
- S82.** Program Committee Member, 37th International Conference on Software Engineering (ICSE 2015), Florence, Italy, May 2015
- S83.** NSF Panel Member, Computing and Communication Foundations, Arlington, VA, May 2015.
- S84.** Program Committee Member, 12th Working IEEE/IFIP Conference on Software Architecture (WICSA 2015), Montreal, Canada, May 2015
- S85.** Program Committee Member, 10th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2015), Florence, Italy, May 2015
- S86.** Program Committee Member, 9th International Workshop on Models at Runtime (MRT 2014), Valencia, Spain, September 2014.
- S87.** Program Committee Member, 5th Testing Techniques and Experimentation Benchmarks for Event-Driven Software (TESTBEDS 2014), Vasteras, Sweden, September 2014.
- S88.** Program Committee Member, 8th European Conference on Software Architecture (ECSA 2014), Vienna, Austria, August 2014
- S89.** Program Committee Member, IEEE 2nd International Workshop on Engineering Mobile Service Oriented Systems (EMSOS 2014), Anchorage, AL, June 2014.
- S90.** Program Committee Member, 4th International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2014), Hyderabad, India, June 2014.
- S91.** Program Committee Member, 2nd International Workshop on the Engineering of Mobile-Enabled Systems (MOBS 2014), Hyderabad, India, June 2014.
- S92.** Program Committee Member, 36th International Conference on Software Engineering (ICSE 2014), Hyderabad, India, June 2014
- S93.** Program committee Member, 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014), Hyderabad, India, June 2014
- S94.** Program Committee Member, 11th Working IEEE/IFIP Conference on Software Architecture (WICSA 2014), Sydney, Australia, April 2014
- S95.** Program Committee Member, Workshop on Architecting Mobile-Enabled Systems (AMeS 2014), Sydney, Australia, April 2014.
- S96.** Program Committee Member, Coordination Models, Languages and Applications track, 29th ACM Symposium on Applied Computing (SAC 2014), Gyeongju, Korea, March 2014.
- S97.** NSF Panel Member, Secure and Trustworthy Computing, Arlington, VA, March 2014
- S98.** Panelist, American Association for the Advancement of Science (AAAS), Maine Technology Institute Development Loan Program, August 2013
- S99.** Program Committee Member, 7th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2013), Philadelphia, USA, September 2013
- S100.** Program Committee Member, International Workshop on Software Engineering for Systems-of-Systems (SESoS 2013), Montpellier, France, July 2013

- S101.** Program Committee Member, 7th European Conference on Software Architecture (ECSA 2013), Montpellier, France, July 2013
- S102.** Program Committee Member, 3rd International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2013), Rio de Janeiro, Brazil, July 2013.
- S103.** Program Committee Member, International Workshop on the Engineering of Mobile-Enabled Systems (MOBS 2013), San Francisco, CA, May 2013
- S104.** Program Committee Member, 4th International Workshop on Software Engineering for Sensor Network Applications (SESENA 2013), San Francisco, CA, May 2013
- S105.** Program Committee Member, 2nd International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2013), San Francisco, CA, May 2013.
- S106.** NSF Panel Member, Computing and Communication Foundations, Arlington, VA, January 2013
- S107.** Program Committee Member, Coordination Models, Languages and Applications track, 28th ACM Symposium on Applied Computing (SAC 2013), Coimbra, Portugal, January 2013.
- S108.** Program Committee Member, 1st International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2012), Chicago, Illinois, September 2012
- S109.** Program Committee Member, 1st International Workshop on Adaptive Service Ecosystems: Nature and Socially Inspired Solutions (ASENSIS 2012), Lyon, France, September 2012
- S110.** 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
- S111.** Program Committee Member, 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2012), Lyon, France, September 2012
- S112.** 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
- S113.** Program Committee Member, Workshop on Architectures and Platforms for Knowledge Discovery from Data, Helsinki, Finland, August 2012
- S114.** Program Committee Member, 15th International ACM SIGSOFT Symposium on Component Based Software Engineering (CBSE 2012), Bertinoro, Italy, June 2012
- S115.** Program Committee Member, 2nd Workshop on Developing Tools as Plug-ins (TOPI 2012), Zurich, Switzerland, June 2012
- S116.** Program Committee Member, 34th International Conference on Software Engineering (ICSE 2012), New Ideas and Emerging Results Track, Zurich, Switzerland, June 2012
- S117.** Program Committee Member, 5th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2011), Ann Arbor, Michigan, October 3-7 2011
- S118.** Program Committee Member, 25th Brazilian Symposium on Software Engineering (SBES), São Paulo, Brazil, September 26-30 2011
- S119.** NSF Panel Member, Computer Networks and Systems core, Arlington, VA, March 2011
- S120.** Program Committee Member, 5th European Conference on Software Architecture (ECSA 2010), Essen, Germany, September 13-16 2011

- S121.** Program Committee Member, 33rd International Conference on Software Engineering (ICSE 2011), ACM Student Research Competition, Honolulu, Hawaii, May 21-28 2011
- S122.** Program Committee Member, 1st International Workshop on Engineering Mobile Service Oriented Systems (EMSOS), Miami, Florida, July 5 2010
- S123.** Program Committee Member, 4th European Conference on Software Architecture (ECSA 2010), Copenhagen, Denmark, August 23-26, 2010
- S124.** Program Committee Member, 33rd International Conference on Software Engineering (ICSE 2011), Technical/Research Track, Honolulu, Hawaii, May 21-28, 2011
- S125.** Program Committee Member, 3rd IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2009), San Francisco, CA, September 14-18, 2009
- S126.** NSF Panel Member, Cyber Physical Systems, Arlington, VA, May 2009
- S127.** Program Committee Member, International Workshop on Software Architectures and Mobility (SAM 2009), Vancouver, Canada, May 2009
- S128.** Program Committee Member, Special Session on Software Architecture for Pervasive Systems (SAPS), 34th Euromicro Conference in Parma, Italy, September 3-5, 2008
- S129.** Program Committee Member, International Conference on Software Engineering Research and Practice (SERP'06), Las Vegas, Nevada, June 2006
- S130.** Program Committee Member, ISR Graduate Student Research Symposium, Irvine, California, June 2005
- S131.** Program Committee Member, 39th Hawaiian International Conference on System Sciences, Kauai, Hawaii, January 2006

10.4 REFEREE AND REVIEWER SERVICE

- S132.** Journal of Computer Security, 2014
- S133.** Elsevier Journal of Pervasive and Mobile Computing, 2014
- S134.** Journal of Computer Science and Technology, 2012
- S135.** ACM Transactions on Autonomous and Adaptive Systems, 2010, 2013, 2014, 2015, 2018, 2019
- S136.** International Journal of Software and Systems Modeling, 2010
- S137.** Journal of Empirical Software Engineering, 2010
- S138.** IEEE Computer, 2009
- S139.** Journal of Systems and Software, 2009, 2010, 2011, 2012
- S140.** ACM Transactions on Software Engineering and Methodology, 2008, 2011, 2012, 2013, 2017
- S141.** European Journal of Information Systems, 2008
- S142.** Enterprise Information Systems, 2008
- S143.** ACM Computing Surveys, 2007, 2008, 2009
- S144.** International Software Technology Journal, 2007, 2010, 2016
- S145.** IEEE Transactions on Software Engineering, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014
- S146.** IET Software, 2007, 2008, 2009

- S147.** IEEE Software, 2006, 2007, 2008, 2018
- S148.** International Working Conference on Software Architecture, outside reviewer, 2007
- S149.** International Working Conference on Component Deployment, outside reviewer, 2005
- S150.** International Workshop on Software Engineering and Middleware, outside reviewer, 2005
- S151.** International Symposium on Component-based Software Engineering, outside reviewer, 2004 - 2006
- S152.** Twin Workshops on Architecting Dependable Systems (WADS), outside reviewer, May 2004
- S153.** ACM SIGSOFT Workshop on Self-Managed Systems (WOSS), outside reviewer, October 2004

11 UNIVERSITY SERVICE

- U1.** Member, Executive Committee, School of Information and Computer Sciences, UCI
2018 – 2019
- U2.** Chair, Software Engineering Steering Committee, School of Information and Computer Sciences, UCI
2018 – 2019
- U3.** Chair, Cybersecurity Recruitment Committee, School of Information and Computer Sciences, UCI
2017-2018
- U4.** Member, Software Engineering Recruitment Committee, Informatics Department, UCI
2017-2018
- U5.** Chair, Software Engineering Admissions Committee, Informatics Department, UCI
2017 – 2018
- U6.** Member, Software Engineering Steering Committee, School of Information and Computer Sciences, UCI
2017 – 2018
- U7.** Member, Executive Committee, School of Information and Computer Sciences, UCI
2017 – 2018
- U8.** Chair, Software Engineering Steering Committee, School of Information and Computer Sciences, UCI
2015 – 2017
- U9.** Member, Graduate Admissions and Recruitment Day Committee, Informatics Department, UCI
2015 – 2017
- U10.** Member, Development and Fundraising Committee, Informatics Department, UCI
2015 – 2017
- U11.** Member, Faculty Recruitment, Computer Science Department, GMU
2013, 2015
- U12.** Member, PhD Admission, Computer Science Department, GMU
2012 – 2015
- U13.** Chair, Software Engineering Seminar Series, Computer Science Department, GMU
2008 – 2015

- U14.** 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

14 LITIGATION CONSULTING

L1. Ameranth v. Pizza Hut, Inc., et al.

Retaining party: Ameranth

Jurisdiction: Southern District of California

Case No.: 3:11-cv-01810 DMS (WVG)

Counsel: Caldarelli Hejmanowski Page & Leer LLP, Fabiano Law Firm, P.C., Osborne Law LLC, and Watts Law Offices

Nature of suit: Intellectual Property – Patent

Deposed on April 23, 2018; April 25, 2018; May 14, 2018; May 21, 2018; June 29, 2018; August 31, 2018; September 4, 2018; September 11, 2018; September 17, 2018

January 2018 – present

L2. IPA Technologies, Inc. v. ZTE (USA), Inc.

Retaining party: ZTE

Jurisdiction: Southern District of California

Case No.: 17-cv-01858-BAS-JLB

Counsel: Brinks Gilson & Lione

Nature of suit: Intellectual Property – Patent

December 2017 – present

L3. Financial Information Technologies Inc. v. IControl Systems, USA, LLC

Retaining party: IControl Systems

Jurisdiction: Middle District of Florida, Tampa Division

Case No: 8:17-cv-190-T-23MAP

Counsel: Rocke McLean Sbar

Nature of suit: Intellectual Property – Trade Secret

Deposed on January 18, 2018

September 2017 – present

L4. Ford Motor Company v. Versata Software, Inc., F/K/A Trilogy Software, Inc.

Retaining party: Versata Software, Inc., F/K/A Trilogy Software, Inc.

Jurisdiction: Eastern District of Michigan, Southern Division

Case No: 15-10628-MFL-EAS (consolidated with 15-11624-MFL-EAS)

Counsel: Ahmad, Zavitsanos, Anaipakos, Alavi, and Mensing P.C.
Nature of suit: Intellectual Property – Patent and Trade Secret
Deposed on December 20 and 21, 2017, and Nov 9, 2018
February 2017 – present

- L5. Financial Information Technologies Inc. v. Mark Lopez**
Retaining party: Mark Lopez
Jurisdiction: Middle District of Florida, Tampa Division
Case No: 8:15-cv-02784-JSM-AEP
Counsel: Roche McLean Sbar
Nature of suit: Intellectual Property – Trade Secret
Deposed on March 18, 2017
January 2017 – September 2017
- L6. Alexander Yershov v. Gannett Satellite Information Network, Inc. d/b/a USA Today.**
Retaining party: Gannett Satellite Information Network
Jurisdiction: District of Massachusetts
Case No: 1:14-cv-13112
Counsel: ZwillGen PLLC
Nature of suit: Class Action
January 2017 – March 2017
- L7. Chrome Systems Inc. v. Internet Brands Inc., Autodata Solutions Inc., et al.**
Retaining party: Chrome Systems Inc.
Case No: JAMS Reference No. 1340012931
Counsel: Wachtell, Lipton, Rosen & Katz
Nature of suit: Intellectual Property – Software License
Deposed on September 7, 2016
Testified at the arbitration on September 16, 2016
June 2016 – October 2016
- L8. TiVo Inc. v. Samsung Electronics Co., Ltd., et al.**
Retaining party: TiVo Inc.
Jurisdiction: Eastern District of Texas
Case No: 2:15-cv-1503
Counsel: Irell & Manella LLP
Nature of suit: Intellectual Property – Patent
April 2016 – December 2016
- L9. Lenovo Adware Litigation**
Retaining party: Lenovo
Jurisdiction: Northern District of California, San Jose Division
Case No: 5:15-md-02624-RMW
Counsel: K&L Gates
Nature of suit: Class Action
April 2016 – present
- L10. Ericsson Inc., et al. v TCL Communication Technology Holdings, LTD, et al.**
Retaining party: TCL
Jurisdiction: Eastern District of Texas; USPTO Patent Trial and Appeal Board
Case No: 2:15-cv-11
Counsel: Sheppard Mullin Richter & Hampton LLP; Morgan, Lewis, and Bockius LLP
Nature of suit: Intellectual Property – IPR and Litigation
Deposed on February 1, 2016; April 14, 2016; August 29, 2016; October 6, 2017

Testified at the trial on December 6, 2017
March 2015 – December 2017

- L11. STAR CO Ranger Digital, LLC v. Microsoft Corporation, et al.**
Retaining party: Microsoft Corporation
Jurisdiction: Eastern District of Texas, Marshall Division
Case No: 2:14-cv-00793
Counsel: Klarquist Sparkman, LLP
Nature of suit: Intellectual Property – Patent
March 2015 – May 2015
- L12. YYZ, LLC v. Hewlett-Packard Company**
Retaining party: Hewlett-Packard Company
Jurisdiction: District of Delaware
Case No: 1:13-cv-00136-SLR
Counsel: Kenyon and Kenyon
Nature of suit: Intellectual Property – Patent
December 2014 – February 2015
- L13. Data Engine Technologies LLC v. International Business Machines Corporation**
Retaining party: Data Engine Technologies
Jurisdiction: Eastern District of Texas, Tyler Division
Case No: 6:13-cv-00858-LED
Counsel: Ahmad, Zavitsanos, Anaipakos, Alavi, and Mensing P.C.
Nature of suit: Intellectual Property – Patent
Deposed on November 23 and 24, 2015
February 2014 – December 2015
- L14. Rockstar Consortium US LP and Netstar Technologies LLC v Google Inc.**
Retaining party: Google Inc.
Jurisdiction: Eastern District of Texas, Marshall Division
Case No: 2:13-cv-00893-JRG-RSP
Counsel: Quinn Emanuel Urquhart & Sullivan LLP
Nature of suit: Intellectual Property – Patent
October 2014 – February 2015
- L15. Optimum Content Protection LLC v. Microsoft Corporation**
Retaining party: Optimum Content Protection
Jurisdiction: Eastern District of Texas, Tyler Division
Case No: 6:13-cv-00741-KNM
Counsel: Ahmad, Zavitsanos, Anaipakos, Alavi, and Mensing P.C.
Nature of suit: Intellectual Property – Patent
November 2014 – December 2014
- L16. Alarm.com Inc. v. iControl Networks Inc.**
Retaining party: Alarm.com Inc.
Jurisdiction: United States Patent and Trademark Office, Patent Trial and Appeal Board
Patent Interference No: 106,001 (HHB)
Counsel: Fish and Richardson P.C.
Nature of suit: Intellectual Property – Patent
June 2014 – October 2014
- L17. Thought Inc. v. Oracle Corporation**
Retaining party: Thought Inc.

Jurisdiction: United States Patent and Trademark Office, Patent Trial and Appeal Board
Inter Partes Review No: IPR2014-00117, IPR2014-00118, IPR2014-00119
Counsel: Sughrue Mion PLLC
Nature of suit: Intellectual Property – Patent
Deposed on August 25 and 26, 2014
May 2014 – October 2014

L18. Steve Morsa v. Facebook, Inc.

Retaining party: Steve Morsa
Jurisdiction: Federal District Court, Central District of California
Case No: 14-00161-JLS-JPR
Counsel: Bragalone Conroy PC
Nature of suit: Intellectual Property – Patent
April 2014 – December 2014

L19. United States of America v Alexander Rousseau

Retaining party: United States of America
Jurisdiction: Southern District of Florida
Case No: 14-20243-KMM(s)
Counsel: U.S. Department of Justice
Nature of suit: Criminal
Testified at the trial on July 15, 2014
June 2014 – July 2014

L20. Clori Isaac v. Geo. Mijilem & Company Inc. DBA SVM L.P., ConocoPhillips, et al.

Retaining party: Clori Isaac
Jurisdiction: Superior Court of California, County of Los Angeles
Case No: BC477305
Counsel: Selman Breitman LLP
Nature of suit: Class Action
April 2014 – June 2014

L21. Miants, LLC, et al. v. Kevin Lasser, et al.

Retaining party: Miants LLC.
Jurisdiction: State of Michigan, Oakland County Circuit Court
Case No: 2013-133695-CK
Counsel: Mantese, Honigman, Rossman & Williamson, P.C.
Nature of suit: Intellectual Property
April 2014 – June 2014

L22. Motorola Mobility Inc. v. Apple Inc.

Retaining party: Motorola Mobility Inc.
Jurisdiction: U.S. District Court for the Southern District of Florida
Case No: 1:12-cv-20271-RNS
Counsel: Quinn Emanuel Urquhart & Sullivan LLP
Nature of suit: Intellectual Property – Patent
December 2013 – May 2014

L23. iControl Networks Inc. v. Alarm.com Inc., et al.

Retaining party: Alarm.com Inc.
Jurisdiction: U.S. District Court for the Eastern District of Virginia
Case No: 13-834 (LMB/IDD) (E.D. Va.)
Counsel: Cravath, Swaine & Moore LLP
Nature of suit: Intellectual Property – Patent

Deposed on December 13, 2013
September 2013 – December 2013

L24. United States ex rel. Hooper v. Lockheed Martin Corporation

Retaining party: United States ex rel. Hooper
Jurisdiction: U.S. District Court for the Central District of California
Case No: 2:08-cv-00561BRO(PJWx)
Counsel: The Cullen Law Firm PLLC
Nature of suit: False Claims Act
August 2013 – January 2014

L25. Lotchinbek Samatov, Jakhongir Samatov, and SSD Software Solutions v. AirShowBuzz

Retaining party: Lotchinbek Samatov, Jakhongir Samatov, and SSD Software Solutions
Jurisdiction: Superior Court of California for the County of Los Angeles Central District
Case No: BC488092
Counsel: Michelman & Robinson LLP
Nature of suit: Breach of Contract
June 2013 – August 2013