

Sam Malek

Assistant Professor
Computer Science Department
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1. Education

Doctor of Philosophy Computer Science August 2007
University of Southern California GPA 3.9
Dissertation Title: *A User-Centric Approach for Improving a Distributed Software
System's Deployment Architecture*
Dissertation Advisor: Nenad Medvidovic

Master of Science Computer Science May 2004
University of Southern California GPA 3.9
Emphasis on Software Engineering

Bachelor of Science Information and Computer Science December 2000
University of California Irvine GPA 3.9

2. Employment History

8/07 – present Assistant Professor, Department of Computer Science, George Mason
University, Fairfax, VA

8/07 – present Faculty Member, C4I Center, Volgenau School of Information Technology &
Engineering, George Mason University, Fairfax, VA

1/03 – 5/07 Graduate Research Assistant, Computer Science Department, University of
Southern California, Los Angeles, CA

4/05 – 5/07 Software Architect, Boeing, Huntington Beach, CA

12/00 – 5/02 Software Engineer, IBM Global Services, Los Angeles, CA

8/99 – 11/00 Software Engineer, FieldCentrix, Irvine, CA

5/98 – 9/99 Software Engineer, Neural Computing Systems Labs, Irvine, CA

3. Research Interests

- Autonomic Computing
- Software Architecture and Design
- Engineering Embedded, Mobile, and Pervasive Software Systems
- Middleware Solutions
- Service Oriented Architectures
- Dependable Computing and Software Security

4. Honors and Awards

- GMU Computer Science Department Outstanding Young Faculty Research Award 2011
- DARPA Computer Science Study Group (CSSG) participant 2011-2013
- Nominated by USC for the final round of ACM Doctoral Dissertation Competition 2007
- USC Computer Science Department Outstanding Graduate Student Researcher Award 2005
- USC Viterbi School of Engineering Fellowship 2004-2008
- Magna Cum Laude 2000
- Cody Thorne Memorial Scholarship Award for the Youngest and Highest Scholastic Student of the Year 1998-1999
- 1997-2000 Dean's Honor List

5. Publications

Edited Books and Journals

- E2. Danny Weyns, Sam Malek, Jesper Andersson, and Bradley Schmerl. "State of the Art in Self-Adaptive Software Systems." *Journal of Systems and Software*, special issue, tentative publication date of December 2011.
- E1. Danny Weyns, Sam Malek, Rogerio de Lemos, and Jesper Andersson, eds. "Self-Organizing Architectures." *Lecture Notes in Computer Science*, Springer Verlag, vol. 6090, 300 pages, September 2009. ISBN: 978-3-642-14411-0

Refereed Journal and Magazine Articles

- J9. Naeem Esfahani, and Sam Malek. "Utilizing Architectural Styles to Enhance the Adaptation Support of Middleware Platforms." *Journal of Information and Software Technology*, Accepted to appear.
- 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*, Accepted to appear.

- J7. Danny Weyns, Sam Malek, and Jesper Andersson. “Unifying Reference Model for Formal Specification of Distributed Self-Adaptive Systems.” *ACM Transactions on Autonomous and Adaptive Systems – Special Issue on Formal Methods for Pervasive, Self-Aware and Context-Aware Systems*, Accepted to appear.
- J6. Sam Malek, Nenad Medvidovic, and Marija Mikic-Rakic. “Improving a Distributed Software System’s Quality of Service via Redeployment.” *IEEE Transactions on Software Engineering*, vol. 38, no. 1, pages 73-100, January/February 2012.
- J5. 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, November/December 2011.
- J4. 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*, vol. 83, no. 12, pages 2513-2527, December 2010.
- J3. 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*, special issue on Software Architecture and Mobility, vol. 83, no. 6, June 2010.
- J2. Sam Malek, Marija Mikic-Rakic, and Nenad Medvidovic. “A Style-Aware Architectural Middleware for Resource-Constrained, Distributed Systems.” *IEEE Transactions on Software Engineering*, vol. 31, no. 3, pages 256-272, March 2005.
- J1. 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. (5.7% acceptance rate)

Book Chapters

- 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, 2012.
- B3. 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.
- B2. 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.
- B1. 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.

Refereed Conference and Workshop Proceedings

- C42. 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)
- C41. Pieter Vromant, Danny Weyns, Sam Malek, and Jesper Andersson. "On Interacting Control Loops in Self-Adaptive Systems." In *proceeding of the 6th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2011)*, Honolulu, HI, May 2011.
- C40. 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, NM, November 2010. (20% acceptance rate)
- C39. 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)
- C38. 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.
- C37. 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.
- C36. Danny Weyns, Sam Malek, and Jesper Andersson. "FORMS: A Formal Reference Model for Self-Adaptation." In *proceeding of the 7th IEEE International Conference on Autonomic Computing (ICAC 2010)*, Washington, DC, June 2010. (25% acceptance rate)
- C35. Daniel A. Menasce, Joao Pedro Sousa, Sam Malek, and Hassan Gomaa. "QoS Architectural Patterns for Self-Architecting Software Systems." In *proceeding of the 7th IEEE International Conference on Autonomic Computing (ICAC 2010)*, Washington, DC, June 2010. (25% acceptance rate)
- C34. 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)
- C33. 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.
- C32. 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.
- C31. 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, Mar 2010. (30% acceptance rate)
- C30. 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*, San Jose, California, Jan 2010. (25% acceptance rate)
- C29. 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*, Denver, Colorado, Oct 2009. (20% acceptance rate for full papers)
- C28. 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 09)*, Denver, Colorado, Oct 2009. (16% acceptance rate)
- C27. 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.
- C26. 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)
- C25. 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.
- C24. 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)
- C23. 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.
- C22. 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)*, Turku, Finland, July 2008. (20% acceptance rate)
- C21. 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)*, Leipzig, Germany, May 2008.
- C20. Roshanak Roshandel, and Sam Malek. "Refining Reliability Estimation of Mobile Software Systems." In *proceedings of the International Workshop on Software Architectures and Mobility (SAM)*, Leipzig, Germany, May 2008.
- C19. 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.

- C18. 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.
- C17. 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.
- C16. 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.
- C15. 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.
- C14. 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.
- C13. 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)
- C12. 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, MN, May 2007.
- C11. 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)
- C10. 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.
- C9. 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.
- C8. 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.
- C7. 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.

- C6. 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.
- C5. 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.
- C4. Sam Malek, Marija Mikic-Rakic, Nenad Medvidovic. "An Extensible Framework for Autonomic Analysis and Improvement of Distributed Deployment Architectures." In *proceedings of the ACM SISGSOFT Workshop on Self-Managed Systems (WOSS 2004)*, Newport Beach, California, October 2004.
- C3. 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.
- C2. 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.
- C1. 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.

Technical Reports

- T3. Naeem Esfahani, Ehsan Kouroshfar, and Sam Malek. "Taming Uncertainty in Self-Adaptation through Possibilistic Analysis." *Technical Report GMU-CS-TR-2010-10*.
- T2. Chiyong Seo, Sam Malek, and Nenad Medvidovic. "An Energy Consumption Framework for Distributed Java-Based Systems." *Technical Report USC-CSE-2006-604*.
- T1. Sam Malek, Nenad Medvidovic, Chiyong Seo, and Marija Mikic-Rakic. "A User-Centric Approach for Improving a Distributed Software System's Deployment Architecture." *Technical Report USC-CSE-2006-602*.

Under Submission

- U4. Ahmed Elkhodary, Naeem Esfahani, and Sam Malek. "A Learning-Based Framework for Engineering Feature-Oriented Self-Adaptive Software Systems." Submitted to *IEEE Transactions on Software Engineering*.
- U3. Naeem Esfahani and Sam Malek. "Systematic Exploration of the Architectural Solution Space under Uncertainty" Submitted to the *Symposium on the Foundations of Software Engineering (FSE 2012)*.
- U2. Eric Yuan and Sam Malek. "A Taxonomy and Survey of Self-Protecting Software Systems." Submitted to *7th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)*.

- U1. Danny Weyns, M. Usman Iftikhar, Sam Malek, and Jesper Andersson. "Claims and Supporting Evidence for Self-Adaptive Systems – A Literature Study." Submitted to 7th *International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)*.

6. Research Grants, Contracts, and Awards

- G7. Defense Advanced Research Project Agency (DARPA)
"Automated Security Testing of Android Applications for Military App Store"
Duration: 6/1/2012 – 5/31/2014
Sole PI
Award Amount: \$399,792
- G6. National Science Foundation (NSF)
"Mining the Execution History of a Software System to Infer the Same Time for its Adaptation"
Duration: 2/1/2012 – 1/31/2013
Sole PI
Award Amount: \$80,000
- G5. Defense Advanced Research Project Agency (DARPA)
"Engineering Highly Adaptive Resilient Software Systems"
Duration: 4/25/2011– 4/24/2012
Sole PI
Award Amount: \$99,285
Grant Number: N11AP20025
- G3. Science Applications International Corporation (SAIC)
"COTS Very Small Computing Platforms - Tactical"
Duration: 1/1/2010 – 6/30/2011
Sole PI
Award Amount: \$224,470
Contract Number: P010033816
- G4. Science Applications International Corporation (SAIC)
"COTS Very Small Computing Platforms - Security"
Duration: 1/1/2010 – 6/30/2011
Sole PI
Award Amount: \$99,415
Contract Number: P010033886
- G2. National Science Foundation (NSF)
"SASSY: Self-Architecting Software Systems"
Duration: 06/15/2008 – 06/1/2011
Co-PIs: Daniel A. Menasce (lead PI), Hassan Gomaa, and Joao P. Sousa
Award Amount: \$479,996
Grant Number: CCF-0820060
- G1. US Army Topographic Engineering Center
Duration: 12/20/2006 – 12/20/2010
Award Amount: \$133,187

Co-PIs: Mark Pullen, Michael Hieb (lead PI)
Contract Number: W9132V-07-C-0006

7. Teaching

- **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
George Mason University
Syllabus available at: http://cs.gmu.edu/~smalek/classes/spring10_cs795/cs795.html
- **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
George Mason University
Syllabus available at: <http://cs.gmu.edu/~smalek/classes/cs795.html>
- **SWE 622 – Distributed Software Engineering**
Terms taught: Fall 2007, Spring 2008, Fall 2008, Fall 2009, Spring 2010, Spring 2011, Fall 2011, Spring 2012
Graduate-level core course for the M.S. degree in Software Engineering
George Mason University
Syllabus available at: <http://cs.gmu.edu/~smalek/classes/swe622.html>
- **CS 589 – Software Engineering for Embedded Systems**
Teaching Assistant, Fall 2003; Guest Lecturer, Fall 2004-2006
University of Southern California
Syllabus available at: http://sunset.usc.edu/classes/cs589_2003/
- **CS 377 – Introduction to Software Engineering**
Guest Lecturer, Fall 2006
University of Southern California

8. Students

Graduated Doctoral Students

- Ahmed Elkhodary
Graduation date: Dec 2011
Thesis title: “A Learning-Based Approach for Engineering Feature-Oriented Self-Adaptive Software Systems”

Graduated Master Students

- Deshan A. Cooray
Graduation date: August 2010
Thesis title: “Resisting Reliability Degradation through Proactive Reconfiguration”

Current Doctoral Students

- Rabeea T. Bakhsh
Status: passed qualifying exams
- Naeem Esfahani
Status: passed thesis proposal exam
Thesis title: “Managing Uncertainty in Making Software Adaptation Decision”
- Thabet Kacem
Status: started Spring 2010
- Kyle Canavera
Status: started Fall 2010
- Ehsan Kourosfar
Status: passed qualifying exams
- Riyadh Mahmood
Status: passed qualifying exams
- Narmian Mirzaei
Status: passed qualifying exams

Doctoral Dissertation Committee Member

- Ahmed Abu Jbara
- Mohammad Abu-Matar
- Julie Street
- Blaine Donley
- Nan Li

Masters Dissertation Committee Member

- Muhammad Faraz Rafi

9. Formal Presentations

- *Guided Exploration of the Architectural Solution Space in the Face of Uncertainty*. Lockheed Martin Architects Workshop, Invited Talk, Littleton, Colorado, August 2011.
- *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.
- *Engineering Self-Adaptive Software Systems*. Invited talk at Virginia Tech, Falls Church, VA, February 2011.
- *Engineering Self-Adaptive Software Systems*. Invited talk at Sharif University, Tehran, Iran, December 2010.
- *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.
- *RESISTing Reliability Degradation through Proactive Reconfiguration*. 25th IEEE/ACM International Conference on Automated Software Engineering (ASE 2010), Antwerp, Belgium, September 2010.

- *Utilizing Architectural Styles to Enhance Adaptation Support in Middleware Platforms*. 4th European Conference on Software Architectures (ECSA 2010), Copenhagen, Denmark, August 2010.
- *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.
- *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.
- *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.
- *Component-Level Energy Consumption Estimation for Distributed Java-Based Software Systems*. International Symposium on Component Based Software Engineering (CBSE 2008), Karlsruhe, Germany, October 2008.
- *Dealing with the Crosscutting Structure of Software Architectural Styles*. IEEE International Computer Software and Applications Conference (COMPSAC), Turku, Finland, July 2008.
- *Architecture-Driven Software Mobility in Support of QoS Requirements*. International Workshop on Software Architectures and Mobility (SAM), Leipzig, Germany, May 2008.
- *Effective Realization of Software Architectural Styles with Aspects*. Working IEEE/IFIP Conference on Software Architecture (WICSA 2008), Vancouver, BC, Canada, February 2008.
- *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.
- *Architecture-Driven Software Mobility in Support of QoS Requirements*. Dagstuhl Seminar 08031 on Software Engineering for Self-Adaptive Systems, Saarbrücken, Germany, January 2008.
- *Reconceptualizing a Family of Heterogeneous Embedded Systems via Explicit Architectural Support*. International Conference on Software Engineering (ICSE 2007), Minneapolis, Minnesota, May 2007
- *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.
- *Tailoring an Architectural Middleware Platform to a Heterogeneous Embedded Environment*. International Workshop on Software Engineering and Middleware (SEM 2006), Portland, Oregon, November 2006.
- *A Decentralized Redeployment Algorithm for Improving the Availability of Distributed Systems*. International Conference on Component Deployment (CD 2005), Grenoble, France, November 2005
- *Improving Availability in Large, Distributed, Component-Based Systems via Redeployment*. International Conference on Component Deployment (CD 2005), Grenoble, France, November 2005
- *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

- *An Extensible Framework for Autonomic Analysis and Improvement of Distributed Deployment Architectures*. ACM SISGSOFT Workshop on Self-Managed Systems (WOSS 2004), Newport Beach, California, October 2004
- *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
- *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
- *Improving System Availability in Distributed Environments*. USC Center for Software Engineering Annual Research Review, Los Angeles, CA, March 2004

10. Journal, Conference, and Workshop Organization

- Editorial Board, Journal of Computing, Springer, 2011-2014
- Internet Chair, 35th International Conference on Software Engineering (ICSE 2013), San Francisco, California, May 2013
- Publicity Chair, 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2012), Lyon, France, September 2012
- 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
- Publicity Chair, 5th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2011), Ann Arbor, Michigan, October 3-7 2011
- Posters Chair, 33rd International Conference on Software Engineering (ICSE 2011), Honolulu, Hawaii, May 21-28, 2011
- 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
- North America Regional Editor, International Journal of Software Architecture, 2010-present
- Co-Organizer, ICAC International Workshop on Self-Organizing Architectures (SOAR 2010), Cambridge, UK, June 7, 2010
- Co-editor, “Self-Organizing Architectures”, Lecture Notes in Computer Science, Springer Verlag, vol. 6090, 300 pages, September 2009, ISBN: 978-3-642-14411-0
- Co-Organizer, WICSA/ECSA International Workshop on Self-Organizing Architectures (SOAR 2009), Cambridge, UK, Sep 14, 2009
- GMU Software Engineering Seminar Series, 2007- present
<http://cs.gmu.edu/~smalek/seminar.html>

11. Program Committee and Panel Membership

- 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
- Program Committee Member, 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2012), Lyon, France, September 2012
- 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
- Program Committee Member, 15th International ACM SIGSOFT Symposium on Component Based Software Engineering (CBSE 2012), Bertinoro, Italy, June 2012
- Program Committee Member, 2nd Workshop on Developing Tools as Plug-ins (TOPI 2012), Zurich, Switzerland, June 2012
- Program Committee Member, 34th International Conference on Software Engineering (ICSE 2012), New Ideas and Emerging Results Track, Zurich, Switzerland, June 2012
- Program Committee Member, 5th International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2011), Ann Arbor, Michigan, October 3-7 2011
- Program Committee Member, 25th Brazilian Symposium on Software Engineering (SBES), São Paulo, Brazil, September 26-30 2011
- NSF Panel Member, Computer Networks and Systems core, Arlington, VA, March 2011
- Program Committee Member, 5th European Conference on Software Architecture (ECSA 2010), Essen, Germany, September 13-16 2011
- Program Committee Member, 33rd International Conference on Software Engineering (ICSE 2011), ACM Student Research Competition, Honolulu, Hawaii, May 21-28 2011
- Program Committee Member, 1st International Workshop on Engineering Mobile Service Oriented Systems (EMSOS), Miami, Florida, July 5 2010
- Program Committee Member, 4th European Conference on Software Architecture (ECSA 2010), Copenhagen, Denmark, August 23-26, 2010
- Program Committee Member, 33rd International Conference on Software Engineering (ICSE 2011), Technical/Research Track, Honolulu, Hawaii, May 21-28, 2011
- Program Committee Member, 3rd IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2009), San Francisco, CA, September 14-18, 2009
- NSF Panel Member, Cyber Physical Systems, Arlington, VA, May 2009
- Program Committee Member, International Workshop on Software Architectures and Mobility (SAM 2009), Vancouver, Canada, May 2009
- Program Committee Member, Special Session on Software Architecture for Pervasive Systems (SAPS), 34th Euromicro Conference in Parma, Italy, September 3-5, 2008
- Program Committee Member, International Conference on Software Engineering Research and Practice (SERP'06), Las Vegas, Nevada, June 2006

- Program Committee Member, ISR Graduate Student Research Symposium, Irvine, California, June 2005
- Program Committee Member, 39th Hawaiian International Conference on System Sciences, Kauai, Hawaii, January 2006

12. Referee and Reviewer Service

- ACM Transaction on Autonomous and Adaptive Systems, 2010
- International Journal of Software and Systems Modeling, 2010
- Journal of Empirical Software Engineering, 2010
- IEEE Computer, 2009
- Journal of Systems and Software, 2009, 2010, 2011, 2012
- ACM Transactions on Software Engineering and Methodology, 2008, 2011
- European Journal of Information Systems, 2008
- Enterprise Information Systems, 2008
- ACM Computing Surveys, 2007, 2008, 2009
- International Software Technology Journal, 2007, 2010
- IEEE Transaction on Software Engineering, 2007, 2008, 2009, 2010, 2011, 2012
- IET Software, 2007, 2008, 2009
- IEEE Software, 2006, 2007, 2008
- International Working Conference on Software Architecture, outside reviewer, 2007
- International Symposium on Component-based Software Engineering, outside reviewer, 2006
- International Working Conference on Component Deployment, outside reviewer, 2005
- International Workshop on Software Engineering and Middleware, outside reviewer, 2005
- International Symposium on Component-based Software Engineering, outside reviewer, 2005
- International Symposium on Component-based Software Engineering, outside reviewer, 2004
- Twin Workshops on Architecting Dependable Systems (WADS), outside reviewer, May 2004
- ACM SISGSOFT Workshop on Self-Managed Systems (WOSS), outside reviewer, October 2004

13. University Service

- Coordinator, Software Engineering Seminar Series, Computer Science Department, GMU Spring 2008 – present
- MS-SWE Admissions & Policy, Computer Science Department, GMU Fall 2007 – present

14. Professional Associations

- Association for Computing Machinery (ACM)
- ACM Special Interest Group on Software Engineering (SIGSOFT)
- IEEE Computer Society