

# Shih-Hsi “Alex” Liu

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## EDUCATION

**UNIVERSITY OF ALABAMA AT BIRMINGHAM**, Birmingham, AL, USA

*Ph.D. in Computer and Information Sciences (August, 2007)*

- Research Interests: Software Engineering and Evolutionary Computation
- Thesis: QoSPL: A Quality of Service-Driven Software Product Line Engineering Framework for Design and Analysis of Component-Based Distributed Real-Time and Embedded Systems
- Committee: Dr. Barrett R. Bryant (Chair), Dr. Jeff Gray, Dr. Marjan Mernik, Dr. Rajeev Raje, and Dr. Chengcui Zhang

**UNIVERSITY OF HOUSTON**, Houston, TX, USA

*Master of Science in Computer Science (December 2002)*

- Master Project Advisor: Dr. Barbara Chapman

**NATIONAL CHIAO-TUNG UNIVERSITY**, Hsin-Chu, Taiwan

*Bachelor of Science in Computer and Information Science (June 2000)*

- Senior Project Advisor: Dr. Jen-Hui Chuang

## PUBLICATIONS

### REFEREED JOURNALS

- Shih-hsi Liu, Adam Cardenas, Marjan Mernik, Barrett R. Bryant, Jeff Gray, and Xang Xiong, “Domain-Specific Language Implementation using Service-Oriented Architecture,” *An International Journal of Multiagent and Grid Systems (just submitted)*
- Matej Crepinsek, Marjan Mernik, and Shih-Hsi Liu, “Analysis of Exploration and Exploitation in Evolutionary Algorithms by Ancestry Trees,” *International Journal of Innovative Computing and Applications (just accepted)*
- Shih-Hsi Liu, Yu Cao, Ming Li, Pranay Kilaru, Thell Smith, and Shaen Toner, “A Biomedical Multimedia System under SOA,” *Journal of Multimedia*, 5(4): 352-360, 2010
- Shih-hsi Liu, Marjan Mernik and Barrett R. Bryant, “To Explore or to Exploit: An Entropy-Driven Approach for Evolutionary Algorithms,” *International Journal of Knowledge-based and Intelligent Engineering Systems*, 13(3-4): 185-206, 2009

- Shih-hsi Liu, Marjan Mernik and Barrett R. Bryant, “Entropy-Driven Parameter Control for Evolutionary Algorithms,” *Informatica: An International Journal of Computing and Informatics*, 31(1): 41-50, 2007

### REFEREED BOOKS and BOOK CHAPTERS

- Shih-Hsi Liu, Marjan Mernik, Mohammed Zubair, Matej Črepinšek, and Barrett R. Bryant, “PPCea: A Domain-Specific Language for Programmable Parameter Control in Evolutionary Algorithms,” in *Evolutionary Algorithms*, In-Tech (*Just Accepted*)
- Shih-Hsi Liu, Yu Cao, Ming Li, Thell Smith, John Harris, Jie Bao, Barrett R. Bryant, and Jeff Gray, “Functional and QoS Semantics-Driven SOA based Biomedical Multimedia Processing,” in *Non-Functional Requirements and Properties in Service Oriented Architecture*, IGI Global (*in press*)
- Shih-Hsi Liu, “*Design Space Exploration for Distributed Real-Time and Embedded Systems: A Software Product Line Engineering Approach for Design and Analysis of Component-based Distributed Real-Time and Embedded Systems*,” VDM-Verlag, 2010
- Shih-hsi Liu, Barrett R. Bryant, Mikhail Auguston, Jeff Gray, Rajeev Raje and Mihran Tuceryan, “A Component-based Approach for Constructing High-confidence Distributed Embedded Systems,” *Proceedings of the Monterey Workshop Series: Workshop on Networked Systems: Realization of Reliable Systems on Top of Unreliable Networked Platforms*, Springer-Verlag LNCS 4322, pages 225-247, Monterey, California, USA, 2007

### REFEREED PROCEEDINGS PAPERS (CONFERENCES and WORKSHOPS)

- Shih-hsi Liu, Adam Cardenas, Xang Xiong, Marjan Mernik, Barrett R. Bryant, Jeff Gray, “A SOA Approach for Domain-Specific Language Implementation,” IEEE 2010 1<sup>st</sup> International Workshop on Service-Oriented Computing and Multi-Agent Systems (SOCMAS 2010), held at The IEEE 6th World Congress on Services, pages 535-542, Miami, FL, USA, July 5-10, 2010
- Matej Crepinsek, Marjan Mernik, Barbara Zadobovsek, and Shih-Hsi Liu, “Ancestry Tree as Base for Analysis of Exploration and Exploitation in Evolutionary Algorithms,” *the 4th International Conference on Bioinspired Optimization Methods and their Applications (BIOMA'10)*, pages 31-42, Ljubljana, Slovenia, May 20-21, 2010
- Shih-hsi Liu, Adam Cardenas, Xang Xiong, Marjan Mernik, Barrett R. Bryant, and Jeff Gray, “Can Domain-Specific Languages Be Implemented by Service-Oriented Architecture?” the 25th ACM Symposium On Applied Computing (SAC'10), pages 2491 – 2492, Sierre, Switzerland, March 22-26, 2010
- Brent Auernheimer, Luís Carriço, Carlos Duarte, Shih-Hsi Liu, and Rui Lopes “Special track on Human Computer Interaction: editorial message,” *the 25<sup>th</sup> ACM Symposium on Applied Computing (SAC'10)*, pages 1157-1158, Sierre, Switzerland, March 22-26, 2010
- Shih-Hsi Liu, Yu Cao, Yili Li, Ming Li, Sanqing Hu, “Semantic Image Classification for Medical Videos,” *IEEE the 2009 International Workshop on*

- Semantic Computing and Multimedia Systems*, held at the 3<sup>rd</sup> IEEE International Conference on Semantic Computing (ICSC’09), pages 648-653, September, 14-16, 2009
- Brent Auernheimer, Shih-Hsi Liu, “Special track on Human Computer Interaction: editorial message,” *the 24<sup>th</sup> ACM Symposium on Applied Computing (SAC’09)*, Hawaii, USA, March 9-12, 2009
  - Yu Cao, Shih-hsi Liu, Ming Li, Shanqing Hu, “Medical Video Event Classification using Shared Features,” *the IEEE International Symposium on Multimedia (ISM’08)*, pages 266-273, Berkeley, CA, USA, December 15-17, 2008
  - Shih-hsi Liu, Yu Cao, Ming Li, Pranay Kilaru, Thell Smith, Shaen Toner, “A Semantics- and Data-Driven SOA for Biomedical Multimedia Systems,” *Workshop of Data Semantics for Multimedia Systems and Applications (DSMSA’08)*, held at IEEE International Symposium on Multimedia (ISM’08), pages 533-538, December 15-17, 2008
  - Yu Cao, Sung Bannng, Shih-hsi Liu, Ming Li, Shanqing Hu, “Audio-Visual Event Classification via Spatial-Temporal-Audio Words,” *the 19<sup>th</sup> International Conference on Pattern Recognition (ICPR’08)*, pages 1-5, Tampa, Florida, USA, December 8-11, 2008
  - Robert Tairas, Shih-hsi Liu, Frédéric Jouault and Jeff Gray, “CoCloRep: A DSL for Code Clones,” *the 4<sup>th</sup> International Workshop on Software Language Engineering (ATES’07)*, held at MODEL’07, pages 91-99, Nashville, Tennessee, USA, September 30-October 5, 2007
  - Shih-hsi Liu, Marjan Mernik and Barrett R. Bryant, “A Clustering Entropy-Driven Approach for Exploring and Exploiting Noisy Functions,” *the 22<sup>nd</sup> ACM Symposium on Applied Computing (SAC’07)*, pages 738-742, Seoul, Korea, March 11-15, 2007
  - Shih-hsi Liu, Marjan Mernik and Barrett R. Bryant, “Entropy-Driven Exploration and Exploitation in Evolutionary Algorithms,” *Proceedings of the 2<sup>nd</sup> International Conference on Bioinspired Optimization Methods and their Applications (BIOMA’06)*, pages 15-24, October 9-10, 2006, Ljubljana, Slovenia
  - Shih-hsi Liu, Barrett R. Bryant, Jeff Gray, Rajeev Raje, Mihran Tuceryan, Andrew Olson and Mikhail Auguston, “QoSPL: A QoS-Driven Software Product Line Engineering Framework for Distributed Real-time and Embedded Systems,” *First International Workshop on Evaluation and Evolution of Component Composition*, held at SEKE’06, pages 724-729, San Francisco, California, USA, July 5-7, 2006
  - Shih-hsi Liu, Fei Cao, Barrett R. Bryant, Jeff Gray, Rajeev Raje, Andrew Olson and Mikhail Auguston, “Quality of Service-Driven Requirements Analyses for Component Composition: A Two-Level Grammar++ Approach,” *Proceedings of the 17<sup>th</sup> International Conference on Software Engineering and Knowledge Engineering (SEKE’05)*, pages 731-734, Taipei, Taiwan, July 14-16, 2005
  - Fei Cao, Barrett R. Bryant, Shih-hsi Liu and Wei Zhao, “A Non-Invasive Approach to Dynamic Web Service Provisioning,” *Proceedings of the 2005 IEEE*

- International Conference on Web Services (ICWS'05)*, pages 229-236, Orlando, Florida, USA, July 12-15, 2005
- Shih-hsi Liu, Barrett R. Bryant, Jeffrey G. Gray, Rajeev Raje, Andrew Olson, and Mikhail Auguston, “QoS-UniFrame: A Petri Net-based Modeling Approach to Assure QoS Requirements of Distributed Real-time and Embedded Systems,” *Proceedings of the 12<sup>th</sup> Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems (ECBS'05)*, pages 202-209, Greenbelt, Maryland, USA, April 4-7, 2005
  - Shih-hsi Liu, Barrett R. Bryant, Jeffrey G. Gray, Rajeev Raje, Andrew Olson, and Mikhail Auguston, “Two-Level Assurance of QoS Requirements for Distributed Real-Time and Embedded System Composition in UniFrame,” *the 20<sup>th</sup> ACM Symposium on Applied Computing (SAC'05)*, pages 903-904, Santa Fe, New Mexico, USA, March 13-17, 2005
  - Shih-hsi Liu, Marjan Mernik and Barrett R. Bryant, “Parameter Control in Evolutionary Algorithms by Domain-Specific Scripting Language PPC<sub>EA</sub>,” *Proceedings of the International Conference on Bioinspired Optimization Methods and their Applications (BIOMA'04)*, pages 41-50, Ljubljana, Slovenia, October 11-12, 2004
  - Shih-hsi Liu and Barrett R. Bryant, “Validation of Distributed Real-Time and Embedded System Composition in UniFrame,” *Proceedings of the 42<sup>nd</sup> Annual ACM Southeast Conference (ACMSE'04)*, pages 303-304, Huntsville, Alabama, USA, April 2-3, 2004
  - Beum-Seuk Lee, Xiaoqing Wu, Fei Cao, Shih-hsi Liu, Wei Zhao, Chunmin Yang, Barrett R. Bryant, and Jeffrey G. Gray, “T-Clipse: an Integrated Development Environment for Two-Level Grammar,” *Proceedings of Eclipse Technology eXchange Workshop (OOPSLA)*, pages 91-95, Anaheim, California, USA, October 27, 2003

## REFEREED POSTERS

- Adam Cardenas and Shih-Hsi Liu, “Implementing Domain-Specific Languages using Service-Oriented Architecture?” the 31<sup>st</sup> Central California Research Symposium, Fresno, CA, USA, 2010
- Shih-hsi Liu, Adam Cardenas, Xang Xiong, Marjan Mernik, Barrett R. Bryant, and Jeff Gray, “Can Domain-Specific Languages Be Implemented by Service-Oriented Architecture?” the 25th ACM Symposium On Applied Computing (SAC'10), pages 2491 – 2492, Sierre, Switzerland, March 22-26, 2010
- Ming Li, Shih-Hsi Liu, Yu Cao, and Todd Wilson, “A Technology Solution for Creation of Dynamic Online Instructional Materials,” *The 12th Annual 2009 Regional Conference on Excellence in Teaching & Learning, Teaching for Engaged Learning*, Fresno, CA, USA, March 13, 2009
- Shih-hsi Liu, Ming Li, Yu Cao, and Todd Wilson, “Motivating Logical Thinking and Problem Solving via LEGO Robots,” *The 12th Annual 2009 Regional Conference on Excellence in Teaching & Learning, Teaching for Engaged Learning*, Fresno, CA, USA, March 13, 2009

- Shih-Hsi Liu and Yu Cao, “Software Engineering via Service-Learning: A Case Study,” *the 12th Annual 2009 Regional Conference on Excellence in Teaching & Learning, Teaching for Engaged Learning*, Fresno, CA, USA, March 13, 2009
- Shih-hsi Liu, “A Software Product Line Architecture for Distributed Real-time and Embedded Systems: A Separation of Concerns Approach,” Companion of *the 20th ACM Annual Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA'05)*, pages 224 – 225, San Diego, California, USA, October 16-20, 2005. (*Invited to participate in the semi-final phase of the Student Research Competition*)
- Shih-hsi Liu, Barrett R. Bryant, Jeffrey G. Gray, Rajeev Raje, Andrew Olson, and Mikhail Auguston, “Two-Level Assurance of QoS Requirements for Distributed Real-Time and Embedded System Composition in UniFrame,” *the 20<sup>th</sup> ACM Symposium on Applied Computing (SAC'05)*, pages 903 – 904, Santa Fe, New Mexico, USA, March 13-17, 2005.
- Beum-Seuk Lee, Xiaoqing Wu, Fei Cao, Shih-hsi Liu, Wei Zhao, Chunmin Yang, Barrett R. Bryant, and Jeffrey G. Gray, “T-Clipse: an Integrated Development Environment for Two-Level Grammar,” Special Event (hosted by IBM): *Eclipse Technology eXchange (OOPSLA'03)*, Anaheim, California, USA, October 27, 2003.

#### REFEREED ABSTRACTS

- Ming Li, Shih-Hsi Liu, Shaen Toner, Yu Cao, Todd Wilson, “Can Free Airport WiFi Be Offered?” *30th Annual Central California Research Symposium*, Fresno, CA, USA, April, 2009
- Shih-hsi Liu, “PPCea: A Domain-Specific Language for Evolutionary Algorithms,” *2007 UAB Graduate Student Research Days (GSRD'07)*, Birmingham, AL, USA, March, 2007
- Shih-hsi Liu, “A QoS-Driven Software Product Line Engineering Framework for Component-based Distributed Real-time and Embedded Systems,” *Mid-Southeast Chapter of ACM*, Gatlinburg, TN, USA, November 16-17, 2006
- Shih-hsi Liu, “A QoS-driven Software Product Line Engineering Framework for Distributed Real-time and Embedded Systems,” *2006 UAB Graduate Student Research Days (GSRD'06)*, Birmingham, AL, USA, March, 2006
- Shih-hsi Liu, Fei Cao, Barrett R. Bryant, Jeffrey G. Gray, Rajeev Raje, Andrew Olson and Mikhail Auguston, “A Grammatical Approach to Quality of Service Requirements Analysis for Distributed Real-time and Embedded Systems,” *the 4th Annual Southeastern Software Engineering Conference (SESEC'05)*, March 28-31, 2005, Huntsville, Alabama USA
- Shih-hsi Liu, “A Quality of Service Parameter-centric Approach for Designing Distributed Real-time and Embedded Systems,” *2005 UAB Graduate Student Research Days (GSRD'05)*, Birmingham, AL, USA, March, 2005
- Shih-hsi Liu and Barrett R. Bryant, “Reasoning Design Requirements of Distributed Real-time and Embedded Systems by a Quality of Service Parameter-centric Approach,” *the Journal of the Alabama Academy of Science*, 2005

- Shih-hsi Liu, “Validating Distributed Real-Time and Embedded Systems in UniFrame,” *the 81<sup>st</sup> Annual Alabama Academy of Science*, Volume 76, No. 2, page 111, Montevallo, Alabama, USA, March 17-20, 2004

## PRESENTATIONS

- Shih-hsi Liu, “Software Engineering Courses at Fresno State,” invited talk/group discussion at *Fresno Software Partnership Monthly Meeting*, September 8<sup>th</sup>, 2010
- Shih-hsi Liu, Adam Cardenas, Xang Xiong, Marjan Mernik, Barrett R. Bryant, Jeff Gray, “A SOA Approach for Domain-Specific Language Implementation,” IEEE 2010 1<sup>st</sup> International Workshop on Service-Oriented Computing and Multi-Agent Systems (SOCMAS 2010), held at The IEEE 6th World Congress on Services, pages 535-542, Miami, FL, USA, July 5-10, 2010
- Shih-hsi Liu, “Service-Oriented Architecture, its Applications, and its Relations to Cloud Computing,” invited talk at *Fresno Software Partnership Monthly Meeting*, May 13<sup>th</sup>, 2010 (w/ Adam Cardenas)
- Shih-hsi Liu, “Orientation of Computer Science Department at Fresno State,” outreach talk at *Fresno State University Preview Day*, March 28<sup>th</sup>, 2009
- Shih-hsi Liu, Yu Cao, Ming Li, Pranay Kilaru, Thell Smith, Shaen Toner, “A Semantics- and Data-Driven SOA for Biomedical Multimedia Systems,” the IEEE International Symposium on Multimedia, pp. 533-538, 2008
- Shih-hsi Liu and Shaen Toner, “Comp-X Summer Camp and Software Engineering Research at Fresno State,” Computer Science Sessions hosted at *Fresno State Science Day*, November 21<sup>st</sup>, 2008
- Shih-hsi Liu, “Comp-X Summer Camp and Software Engineering Research at Fresno State,” invited talk at *Fresno State Honor Day*, September 20<sup>th</sup>, 2008
- Shih-hsi Liu, “Software Engineering Courses and Research Projects at Fresno State,” invited talk at *CSCI 200 Introduction to Research in Computer Science*, September 11<sup>th</sup>, 2008
- Shih-hsi Liu, “A QoS-driven Software Product Line Engineering Framework for Component-based Distributed Real-time and Embedded Systems,” invited talk at *Indiana University Purdue University Indianapolis*, March 28<sup>th</sup>, 2007
- Shih-hsi Liu, “A Clustering Entropy-Driven Approach for Exploring and Exploiting Noisy Functions,” *the 22<sup>nd</sup> ACM Symposium on Applied Computing (SAC’07)*, Seoul, Korea, March 11-15, 2007
- Shih-hsi Liu, “PPCea: A Domain-Specific Language for Evolutionary Algorithms,” *2007 UAB Graduate Student Research Days (GSRD’07)*, Birmingham, AL, USA, March, 2007
- Shih-hsi Liu, “A QoS-driven Software Product Line Engineering Framework for Component-based Distributed Real-time and Embedded Systems,” invited talk at *California State University, Fresno*, February 27<sup>th</sup>, 2007
- Shih-hsi Liu, “QoSPL: A QoS-Driven Software Product Line Engineering Framework for Distributed Real-time and Embedded Systems,” *the First International Workshop on Evaluation and Evolution of Component Composition*, held at *SEKE’06*, San Francisco, California, USA, July 5-7, 2006

- Shih-hsi Liu, "A QoS-driven Software Product Line Engineering Framework for Distributed Real-time and Embedded Systems," *2006 UAB Graduate Student Research Days (GSRD'06)*, Birmingham, AL, USA, March, 2006
- Shih-hsi Liu, "A Software Product Line Architecture for Distributed Real-time and Embedded Systems: A Separation of Concerns Approach," Student Research Competition, *the 20th ACM Annual Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA'05)*, San Diego, California, USA, October 16-20, 2005
- Shih-hsi Liu, "A Software Product Line Architecture for Distributed Real-time and Embedded Systems: A Separation of Concerns Approach," Poster Session, *the 20th ACM Annual Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA'05)*, San Diego, California, USA, October 16-20, 2005
- Shih-hsi Liu, "Quality of Service-Driven Requirements Analyses for Component Composition: A Two-Level Grammar++ Approach," *the 17<sup>th</sup> International Conference on Software Engineering and Knowledge Engineering (SEKE'05)*, pages 731-734, Taipei, Taiwan, July 14-16, 2005
- Shih-hsi Liu, "Introducing High School Students to Java through Lego Robot Experiments," invited orientation talk at the Department of Computer and Information Sciences, UAB, June, 2005
- Shih-hsi Liu, "QoS-UniFrame: A Petri Net-based Modeling Approach to Assure QoS Requirements of Distributed Real-time and Embedded Systems," *the 12<sup>th</sup> Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems (ECBS'05)*, Greenbelt, Maryland, USA, April 4-7, 2005
- Shih-hsi Liu, "A Grammatical Approach to Quality of Service Requirements Analysis for Distributed Real-time and Embedded Systems," *the 4th Annual Southeastern Software Engineering Conference (SESEC'05)*, Huntsville, Alabama USA, March 28 -31, 2005
- Shih-hsi Liu, "Two-Level Assurance of QoS Requirements for Distributed Real-Time and Embedded System Composition in UniFrame," Poster Session, *the 20<sup>th</sup> ACM Symposium on Applied Computing (SAC'05)*, Santa Fe, New Mexico, USA, March 13-17, 2005
- Shih-hsi Liu, "A Quality of Service Parameter-centric Approach for Designing Distributed Real-time and Embedded Systems," *2005 UAB Graduate Student Research Days (GSRD'05)*, Birmingham, AL, USA, March, 2005
- Shih-hsi Liu, "Reasoning Design Requirements of Distributed Real-time and Embedded Systems by a Quality of Service Parameter-centric Approach," *the Journal of the Alabama Academy of Science*, 2005
- Shih-hsi Liu, "Validation of Distributed Real-Time and Embedded System Composition in UniFrame," *the 42<sup>nd</sup> Annual ACM Southeast Conference (ACMSE'04)*, Huntsville, Alabama, USA, April 2-3, 2004
- Shih-hsi Liu, "Validating Distributed Real-Time and Embedded Systems in UniFrame," *the 81<sup>st</sup> Annual Alabama Academy of Science*, Montevallo, Alabama, USA, March 17-20, 2004

## **PROFESSIONAL ACTIVITIES**

### **EDITED JOURNALS**

- Jun Suzuki, Shih-Hsi Liu, and Marjan Mernik. A Special Issue on Emerging Synergies of Artificial Intelligence and Software Engineering, International Journal of Software Engineering and Knowledge Engineering, February 2012.

### **CONFERENCE/WORKSHOP (VICE) CHAIRS**

- The 5<sup>th</sup> IEEE International Enterprise Computing Conference, Helsinki, Finland, August 2011 (Publicity Chair)
- The 5<sup>th</sup> International ICST Conferences on Bio-Inspired Models of Network Information, and Computing Systems, Boston, USA, December 2010 (Vice PC Chair)
- Special Track on Artificial Intelligence and Software Engineering (AISE) hosted at The 5<sup>th</sup> International ICST Conferences on Bio-Inspired Models of Network Information, and Computing Systems, Boston, USA, December 2010 (Co-Chair)
- The 25<sup>th</sup> ACM Symposium on Applied Computing (SAC’10), Track on Human Computer Interaction, Sierre, Switzerland, March, 2010 (Co-Chair)
- The 24<sup>th</sup> ACM Symposium on Applied Computing (SAC’09), Track on Human Computer Interaction, Hawaii, USA, March, 2009 (Co-Chair)

### **PROGRAM/TECHNICAL COMMITTEES**

- The 5<sup>th</sup> International Conferences on Multimedia and Ubiquitous Engineering (MUE 2011), Crete, Greece, June 2011
- The 26<sup>th</sup> ACM Symposium on Applied Computing (SAC’11), Track on Embedded Systems: Applications, Solutions, and Techniques, Taichung, Taiwan, March 2011
- The 26<sup>th</sup> ACM Symposium on Applied Computing (SAC’11), Track on Service Oriented Architectures and Programming, Taichung, Taiwan March, 2011
- The 2<sup>nd</sup> International Conferences on Advanced Service Computing, Lisbon, Portugal, November 2010
- The 10<sup>th</sup> Workshop on Domain-Specific Modeling (DSM’10), Reno/Tahoe, Nevada, USA, October 2010
- The 4<sup>th</sup> International Conferences on Multimedia and Ubiquitous Engineering (MUE 2010), Cebu, Philippines, August 2010
- The 2010 IEEE Congress on Evolutionary Computing (CEC’10), Barcelona, Spain, July 2010
- International Workshop on Software Test Automation, Practice, and Standardization, hosted at The 22<sup>nd</sup> International Conference on Software Engineering and Knowledge Engineering (SEKE’10), San Francisco, CA, USA, July 2010.
- International Workshop on Service-Oriented Computing and Engineering, hosted at The 22<sup>nd</sup> International Conference on Software Engineering and Knowledge Engineering (SEKE’10), San Francisco, CA, USA, July 2010.

- The 22<sup>nd</sup> International Conference on Software Engineering and Knowledge Engineering (SEKE’10), San Francisco, CA, USA, July 2010.
- The 8th ACIS International Conference on Software Engineering Research, Management and Applications (SERA’10), Montreal, Canada, May 2010.
- The 25<sup>th</sup> ACM Symposium on Applied Computing (SAC’10), Track on Evolutionary Computation, Sierre, Switzerland, March, 2010
- The 25<sup>th</sup> ACM Symposium on Applied Computing (SAC’10), Track on Embedded Systems: Applications, Solutions, and Techniques, Sierre, Switzerland, March, 2010
- *The 2<sup>nd</sup> Workshop on Data Semantics for Multimedia Systems and Applications (DSMSA’09), held at the IEEE International Symposium on Multimedia 2009, San Diego, CA, USA, December 2009*
- 7th ACIS International Conference on Software Engineering Research, Management and Applications, Haikou, China, December 2009
- The 1<sup>st</sup> International Conferences on Advanced Service Computing, Athens, Greece, November 2009
- *The 9<sup>th</sup> OOPSLA Workshop on Domain-Specific Modeling (DSM’09), Orlando, FL, USA, October 2009*
- *The 2<sup>nd</sup> Workshop on Advances in Programming Languages (WAPL’09), held at The 2009 International Multiconference on Computer Science and Information Technology, Mragowo, Poland, October 2009*
- *The 2<sup>nd</sup> International Workshop on Semantic Computing and Multimedia Systems, a Workshop held at ICSC’09, Berkeley, CA, September, 2009*
- *The 12<sup>th</sup> International Conference on Network Based Information Systems (NBIS’09), Indianapolis, IN, USA, August, 2009*
- *The 21<sup>st</sup> International Conference on Software Engineering and Knowledge Engineering (SEKE’09), Boston, MA, USA, July, 2009*
- *The 2009 IEEE Congress on Evolutionary Computing (CEC’09), Special Session on Parameter Setting in Evolutionary Algorithms, Trondheim, Norway, May 2009*
- *The 1<sup>st</sup> International Workshop on Pervasive Computing Systems and Infrastructures (PCSI), held at The 5th International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities, Washington DC, USA, April 2009*
- *The 24<sup>th</sup> ACM Symposium on Applied Computing (SAC’09), Applications of Evolutionary Computation Track, Hawaii, USA, Mach 2009*
- The 24<sup>th</sup> ACM Symposium on Applied Computing (SAC’09), Applications of Embedded Systems Track, Hawaii, USA, Mach 2009
- *The 1<sup>st</sup> Workshop on Data Semantics for Multimedia Systems and Applications (DSMSA’08), held at the IEEE International Symposium on Multimedia 2008, Berkeley, CA, USA, December 2008*
- *The 8<sup>th</sup> OOPSLA Workshop on Domain-Specific Modeling (DSM’08), Nashville, TN, USA, October 2008*
- *The 1<sup>st</sup> International Workshop on Model-Driven Development on Autonomic Systems (MDDAS’08) held at the 32<sup>nd</sup> IEEE International Computer Software and Application Conference, Turku, Finland, July 2008*

- *The 20<sup>th</sup> International Conference on Software Engineering and Knowledge Engineering (SEKE’08), Special Track on Model-Based Software Engineering*, San Francisco, CA, USA, July 2008
- *2008 IEEE Congress on Evolutionary Computation (CEC’08) held at 2008 IEEE World Congress on Computational Intelligence (WCCI’08)*, Hong Kong, China, June 2008
- *2008 IEEE International Conference on Networking, Sensing and Control (ICNSC’08), Special Session on the Intelligent Multimedia Information System*, Hainan, China April 2008
- *The 23<sup>rd</sup> ACM Symposium on Applied Computing (SAC’08), Applications of Evolutionary Computation Track*, Fortaleza, Ceara, Brazil, Mach 2008
- *Workshop on Automating Service Quality (WRASQ)*, a Workshop held at ASE’07 (Automated Software Engineering), Atlanta, GA, November, 2007
- *The 7<sup>th</sup> OOPSLA Workshop on Domain-Specific Modeling (DSM’07)*, Montréal, Canada, October, 2007
- *The 1<sup>st</sup> International Workshop on Semantic Computing and Multimedia Systems*, a Workshop held at ICSC’07, San Diego, CA, September, 2007

#### **JOURNAL/GRANT/BOOK REVIEWERS**

- International Journal of Computer Applications in Technology
- Non-Functional Requirements and Properties in Service Oriented Architecture, IGI Global, 2010
- Acta Electrotechnica et Informatica Journal
- Multimedia Tools and Applications, Springer
- Georgian National Science Foundation: State Science Grant Competition, 2008
- IEEE Software: Special issue on Domain-Specific Languages & Modeling
- IEEE Multimedia
- IEEE Transaction on Systems, Men and Cybernetics – Part B (Regular Reviewer since 2007)
- Handbook on Dynamic System Modeling, CRC Press
- Journal of Computing Science and Engineering
- Soft Computing: A Fusion of Foundations, Methodologies and Applications, Springer (Regular Reviewer since 2006)

#### **PROCEEDINGS PAPER REVIEWERS**

- The 10th International Symposium on Distributed Objects, Middleware, and Applications (DOA’08)
- The 7<sup>th</sup> International Conference on Aspect-Oriented Software Development (AOSD’08) – The secondary reviewer
- The 23<sup>rd</sup> ACM Symposium on Applied Computing (SAC’08), Embedded Systems: Applications, Solutions, and Techniques (EMBS)
- The 11<sup>th</sup> Enterprise Distributed Object Computing Conference
- The 22<sup>nd</sup> ACM Symposium on Applied Computing (SAC’07), Embedded Systems: Applications, Solutions, and Techniques (EMBS)
- The 2<sup>nd</sup> International Conference on Software and Data Technologies

- The 5<sup>th</sup> International Conference on Generative Programming and Component Engineering (GPCE’06) – The secondary reviewer
- The 13<sup>th</sup> Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems – The secondary reviewer
- OOPSLA: The 3<sup>rd</sup> Workshop on Java Technologies for Real-Time and Embedded Systems (JTRES’05) – The secondary reviewer
- OOPSLA: Eclipse Technology eXchange Workshop 2005 (ETX’05) –The secondary reviewer
- The 7<sup>th</sup> International Symposium on Distributed Objects and Applications (DOA’05) – The secondary reviewer
- The 26<sup>th</sup> IEEE Real-Time System Symposium (RTSS’05) – The secondary reviewer
- The 9<sup>th</sup> Enterprise Distributed Object Computing Conference
- The 9<sup>th</sup> Brazilian Symposium on Programming Languages (SBLP’05)
- The best papers in the UML’04 Conference in the Journal of the Software and System Modeling
- The 11<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS’05) – The secondary reviewer
- The 37<sup>th</sup> Hawaii Intl. Conf. on System Sciences (HICSS’05)

#### **ATTENDED CONFERENCES/WORKSHOPS**

- The 6<sup>th</sup> IEEE World Congress on Services, July, 2010
- SoftHum Workshop on Involving Students in Humanitarian Free and Open Source Software Projects, June 2009
- The 24<sup>th</sup> ACM Symposium on Applied Computing, March, 2009
- The 2008 International Symposium on Multimedia, December, 2008
- The 23<sup>rd</sup> Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications, October, 2008
- Google Faculty Summit, July, 2008
- The 20<sup>th</sup> International Conference on Software Engineering and Knowledge Engineering, July, 2008
- Google IO, May, 2008
- The 21<sup>st</sup> IEEE-CS Conference on Software Engineering Education and Training, April, 2008
- NSF Regional Grants Conference, October, 2007
- The 22<sup>nd</sup> ACM Symposium on Applied Computing, March, 2007
- 2006 Conference of the Mid-Southeast Chapter of ACM, Nov, 2006
- The 18<sup>th</sup> International Conference on Software Engineering and Knowledge Engineering, July, 2006
- 2006 Real-time and Embedded Computing Conference, March, 2006
- The 20<sup>th</sup> Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications, October, 2005
- The 17<sup>th</sup> International Conference on Software Engineering and Knowledge Engineering, July, 2005

- The 12<sup>th</sup> IEEE International Conference and Workshop on the Engineering of Computer Based Systems, April, 2005
- The 20<sup>th</sup> ACM Symposium on Applied Computing, March, 2005
- The 4<sup>th</sup> Southeastern Software Engineering Conference, March, 2005
- The 82<sup>nd</sup> Alabama Academy of Science, March, 2005
- The 42<sup>nd</sup> Annual ACM Southeast Conference, April, 2004
- The 81<sup>st</sup> Alabama Academy of Science, April, 2004
- The 9<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium, May, 2003
- The 36<sup>th</sup> Hawaii Intl. Conf. on System Sciences (HICSS'04)

**SERVICES**

- Curriculum Committee (2010 – 2013). College of Science and Mathematics, CSUF
- Academic Senator (2009 – 2011). California State University, Fresno
- Mentor (2009-present), CSUF Student Chapter of the ACM
- Research Committee (2008 – 2010). College of Science and Mathematics, CSUF
- Vice President and Web Administrator (2006). UAB Taiwanese Scholar and Student Association
- Ambassador (2004-2005), UAB Student Chapter of the ACM
- Class Representative (1999), NCTU CIS Class 2000
- Crew of Physical Department (1998-1999), NCTU CIS Student Association

**GRANT ACTIVITIES**

- Graduate Assistantship Awards (Spring and Fall, 2010), Division of Graduate Studies, California State University, Fresno. Total Amount: \$10,000
- Undergraduate Research Awards (Spring and Fall, 2010), California State University, Fresno. Total Amount: \$1,000
- Seminar/Lecture Series/Special Instructional Program (2007-2008), College of Science and Mathematics, California State University, Fresno. Total Amount: TBA
- Research, Scholarship, and Creative Activity Award (December, 2008), College of Science and Mathematics, California State University, Fresno. Amount: 3 WTUs (est. \$5000)
- Faculty Sponsored Student Research Awards (2007-2009), College of Science and Mathematics, California State University, Fresno. Total Amount: \$3450.00
- Service-Learning Curriculum Development Grants (March, 2008), California State University, Fresno. Title: Software Engineering via Service-Learning (with Dr. Yu Cao). Amount: \$6000.00
- Grants for Enhancing Learning and Teaching (March 2008), California State University, Fresno. Title: Active Learning with Collaborative Software: Computer-Supported Collaborative Learning (CSCL) Instructional Design (with Dr. Yu Cao). Amount: \$5000.00
- CSU Awards for Research, Scholarship, and Creative Activity (March 2008), California State University, Fresno. Title: A Domain-Specific Language for Parameter Settings in Evolutionary Algorithms. Amount: \$5,000 (for 3 WTU)
- Graduate Program Enhancement Award (March 2008), California State University, Fresno (with Drs. Todd Wilson, Yu Cao, Ming Li and Shigeko Seki).
- Instructional Equipment Program (Nov. 2007), College of Science and Mathematics, California State University, Fresno. Title: The Annual Bulldogs Robotics Summer Camp (with Drs. Yu Cao and Ming Li). Amount: \$20,220.00
- Service-Learning Seminar Mini-Grant (Sep. 2007), Civic Engagement and Service-Learning, California State University, Fresno. Title: Observing and Realizing Software Needs via Service-Learning. Amount: \$400.00
- ACM Student Research Competition. Received a student research competition award from ACM to participate in the Student Research Competition in the 20<sup>th</sup> ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications in San Diego, California, USA, October 2005. Amount: \$500.00
- Alabama Academy of Science (May 2004). Title: Formal Specification Methods for Distributed Real-Time and Embedded Systems in UniFrame. Amount: \$150.00

**TRAVEL AWARDS**

- SoftHum Workshop Travel Grant Supported by NSF, June 11-12, 2009
- Performance Award (2007-2010), College of Science and Mathematics, California State University, Fresno. Total Amount: \$3099.99
- Travel grants from CIS department, UAB to present papers in SAC'07, SEKE'06, and SEKE'05. Total Amount: \$1300.00
- Travel grants from GSA (Graduate Students Association), UAB to present papers in SAC'07, SEKE'06, ECBS'05, and ACMSE'04. Total Amount: \$600.00
- Travel grant from ACM SIGAPP STAP to present a paper in the 22<sup>nd</sup> ACM Symposium on Applied Computing (SAC'07) in Seoul, Korea, March 11-15, 2007. Amount: \$500.00
- Travel grant from ACM to participate in the Student Research Competition in the 20<sup>th</sup> ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications in San Diego, California, USA, October 2005. Amount: \$500.00
- Travel grant from ACM as a student volunteer in the 20<sup>th</sup> ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications in San Diego, California, USA, October 2005. Amount: \$150.00
- Travel grant from IEEE to present a paper in the 12<sup>th</sup> Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems in Greenbelt, Maryland, USA, April 2005. Amount: \$100.00
- Travel grant from DARPA to attend the 8<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'03) in Washington DC, USA, May 2003

**HONORS**

- Selected as one of the best papers at BIOMA'10 (May 2010)
- Selected as one of the best workshop papers at DSMSA'08 (Dec 2008)
- The 3<sup>rd</sup> Place in the Doctoral Paper Division at the Mid-Southeast Chapter of ACM (Nov 2006)
- Selected as one of the best conference papers at BIOMA'06 (Oct 2006)
- Participated in the semi-final phase of the Student Research Competition in OOPSLA'05 (Oct 2005)
- Full Tuition Assistantship, UAB (2003- 2007)

**MEMBERSHIPS**

- Alabama Academy of Science, 2004-2007
- Association for Computing Machinery (ACM), 2004-present
- Association for Computing Machinery Special Interest Group on Applied Computing (SIGAPP), 2005-present

- Association for Computing Machinery Special Interest Group on Software Engineering (SIGSOFT), *2005-present*
- Institute of Electrical and Electronics Engineering, *2004-present*
- Computer Science Teachers Association, *2008-present*

## **PROFESSIONAL EXPERIENCES**

### ***TEACHING EXPERIENCE***

- **CALIFORNIA STATE UNIVERSITY, FRESNO (2007 – Present)**

#### *Instructor*

- Csci 40 Introduction to Programming and Problem Solving (F08)
  - Csci 41 Introduction to Data Structures (F09, S10, F10)
  - Csci 150 Introduction to Software Engineering (F07, F08, F08, F10)
  - Csci 152(S) Software Engineering (S08, S09, S10)
  - Csci 191T Special Topics in Enterprise Software Development (F08)
  - Csci 250 Advanced Software Engineering (S08, S09, F10)
  - Csci 252 Software Development Environments (F07, F09, F10)
- (Student Ratings of Overall Teaching Effectiveness 5.0 - Perfect Score)*

#### *Lab Instructor*

- Csci 40 Introduction to Programming and Problem Solving (F08)
- Csci 41 Introduction to Data Structures (F09, S10, F10)
- Csci 150 Introduction to Software Engineering (F07, F08, F08, F10)
- Csci 152(S) Software Engineering (S08, S09, S10)

- **UNIVERSITY OF ALABAMA AT BIRMINGHAM (2003 – 2007)**

#### *Lecturer*

- CS 101 Computing Fundamentals (1 semester)
- CS 304 Object-Oriented Programming in C++ (1 semester)
- CS 420/520 Software Engineering (1 semester, some lectures in Fall'06)

#### *Lab Instructor*

- CS 101 Computing Fundamentals Lab (6 semesters)
- CS 102 Web-Based Technologies (1 semester)
- CS 201 Introduction to Object Oriented Programming Lab (2 semesters)
- CS 302 Foundations of Computer Science (1 semester)
- CS 330 Computer Organization and Assembly Language (1 semester) *(Student Ratings of Instruction Score 4.0 - Perfect Score)*

#### *Teaching Assistant*

- CS 201 Introduction to Object Oriented Programming (1 semester)

- CS 304 Object-Oriented Programming in C++ (1 semester)
- CS 405 Programming Languages (2 semesters)
- CS 420/520 Software Engineering (2 semesters)
- CS 441/541 Parallel Computing (1 semester)
- CS 491/591 Special Topics in Web Services (1 semester)
- CS 602/702 Compiler Design I (1 semester)

### ***EDUCATIONAL/PROFESSIONAL OUTREACH***

- **DIRECTORS**
  - The Computer Exploration Summer Camp (<http://computercamp.csufresno.edu>), June 2008, July 2009
- **COORDINATORS and DEPT. REPRESENTATIVES**
  - Service-Learning Software Projects, 2008 – present
- **STUDENT VOLUNTEERS**
  - The 20<sup>th</sup> ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications, San Diego, California, USA. Tutorial 18: Software Factories (<http://www.oopsla.org/2005/ShowEvent.do?id=158>). Oct. 2005.
  - Orientation for Tougaloo College, Jackson, Mississippi, USA. Title: Introducing High School Students to Java through Lego Robot Experiments. June 2005 (Speaker)
  - Annual Alabama High School Programming Contest ([http://www.cis.uab.edu/news/details.php?event\\_id=61](http://www.cis.uab.edu/news/details.php?event_id=61)). May 2005, May 2007 (Grader)
  - The Birmingham Parent's Fair. Title: Introduction to robotics and graphics camps ([http://www.cis.uab.edu/news/details.php?event\\_id=54](http://www.cis.uab.edu/news/details.php?event_id=54)). March 2005 (CIS department representative)
  - Adaptive Robot Control in Java in cooperation with the Heritage Center (<http://www.cis.uab.edu/heritage/>). Summer 2004, Summer 2005, (Student mentor)

### **MISC.**

- Publications, research information and project demos are available at <http://zimmer.csufresno.edu/~shliu>