Reza Hajisheykhi

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Research Interests

Distributed Systems, Automated Software Design, Software Fault Tolerance, Formal Methods, Security Protocols, Embedded Systems, Wireless Networks (Ad Hoc and Sensor Networks)

Education

Michigan State University, Michigan, USA

PhD candidate, Computer Science — 2010 - 2016 (EXPECTED)
GPA: 3.93/4.0

- Advisor: Prof. Sandeep Kulkarni
- Some PhD Courses: Advanced Operating System, Formal Method and Software Develop, Design and Theory of Algorithms, Foundation of Computing, Evolutionary Computation, Algorithmic Graph Theory

Sharif University of Technology, Tehran, Iran

MSc, Computer Engineering (Hardware) — 2006 - 2009
GPA: 18.26/20

- Thesis Topic: "*Evaluation of mutual effect of Real-timeness on power consumption in Wireless Sensor Networks*"
- Advisor: Prof. Amir Hossein Jahangir
- Some Graduate Courses: Advanced Computer Architecture, Advanced Computer Networks, Design and Analysis of Computer Networks

Iran University of Science and Technology, Tehran, Iran

BSc, Computer Engineering (Software) — 2001 - 2006
GPA: 15.8/20

- Project: "*Evaluation of NS2 simulator and implementing a sample network with it*"
- Advisor: Hadi Yousefi

Honors and Awards

- 2015: **Summer School on Formal Techniques Travel Award**, Menlo College, Atherton, CA, May 2015
- 2014: **Summer School on Formal Techniques Travel Award**, Menlo College, Atherton, CA, May 2014
- 2012: **Summer School on Formal Techniques Travel Award**, Menlo College, Atherton, CA, May 2012
- 2012: **DSN Student Forum Nomination**, DSN conference, Boston, Massachusetts, June 2012
- 2011: **Best Student Project:** "Adaptive Accuracy-aware Localization for Smart Phones", Hawaii Project by Microsoft Research, 42nd ACM SIGCSE Technical Symposium on Computer Science Education, Dallas, Texas, March 2011
(http://research.microsoft.com/en-US/projects/hawaii/spring2011.aspx)

Industrial Experience

- **Verizon Digital Media Services**: Advanced R+D internship — Aug. 2013 - Dec. 2013
Mentor: Robert Peters
Project: Big data and cloud scalability.

Tools Developed

- **UFIT**: A Tool for Modeling Faults in UPPAAL Timed Automata.
- **USlicer**: A Tool for Slicing UPPAAL Timed Automata.

Publications

Journal Publications

- **"Slow is Fast" for Wireless Sensor Networks in the Presence of Message Losses**
  (joint work with L. Zhu, M. Arumugam, M. Demirbas, and S. Kulkarni)
  Journal of Parallel and Distributed Computing (JPDC), Elsevier, 2015

- **Facilitating the Design of Fault Tolerance in Transaction Level SystemC Programs**
  (joint work with A. Ebnenasir and S. Kulkarni)
  Theor. Comput. Sci. 496: 50-68 (2013)

- **Bounded Auditable Restoration of Distributed Systems**
  (joint work with M. Roohitavaf and S. Kulkarni)
  Submitted to IEEE Transactions on Computers(TC)

Conference Publications

- **A Framework for Verification of SystemC TLM Programs with Model Slicing**
  (joint work with M. Roohitavaf, Ali Ebnenasir, and S. Kulkarni)
  in 53rd Design Automation Conference (DAC) 2016
- **Auditable Restoration of Distributed Programs**
  (joint work with M. Roohitavaf and S. Kulkarni)
  in 34th Symposium on Reliable Distributed Systems (SRDS) 2015
- **UFIT: A Tool for Modeling Faults in UPPAAL Timed Automata**
  (joint work with A. Ebnenasir and S. Kulkarni)
  in NASA Formal Methods Symposium (NFM), 2015
- **A Theory of Integrating Tamper Evidence with Stabilization**
  (joint work with A. Ebnenasir and S. Kulkarni)
  in International Conference on Fundamentals of Software Engineering (FSEN), 2015
- **Tamper-Evident Stabilization**
  (joint work with A. Ebnenasir and S. Kulkarni)
  in 16th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), 2014
- **Evaluating the Effect of Faults in SystemC TLM Models using UPPAAL**
  (joint work with A. Ebnenasir and S. Kulkarni)
  in 12th International Conference on Software Engineering and Formal Methods (SEFM), 2014
- **Knowledge-based Automated Repair of Authentication Protocols**
  (joint work with B. Bonakdarpour and S. Kulkarni)
  in 19th International Symposium on Formal Methods (FM), 2014
- **Analysis of Permanent Faults in Transaction Level SystemC Models**
  (joint work with A. Ebnenasir and S. Kulkarni)
  in ADSN@ICDCS, 2014
- **Modeling and analyzing timing faults in transaction level SystemC programs**
  (joint work with A. Ebnenasir and S. Kulkarni)
  in NoCArc@MICRO, 2013

- **A brief Announcement: Modeling and analyzing timing faults in transaction level SystemC programs**
  (joint work with A. Ebnenasir and S. Kulkarni)
  in 15th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), 2013
- **Facilitating the Design of Fault Tolerance in Transaction Level SystemC Programs**
  (joint work with A. Ebnenasir and S. Kulkarni)
  in 13th International Conference on Distributed Computing and Networking (ICDCN), 2012
- **An Analytical Performance Evaluation for WSNs Using Loop-Free Bellman Ford Protocol**
  (joint work with M. Baharloo, M. Arjomand, A. H. Jahangir)
  in 23rd International Conference on Advanced Information Networking and Applications (AINA), 2009
- **A Cross Layered scheme for Broadcasting at Intersections in Vehicular Ad hoc Networks**
  (joint work with A.Nasri, M.Fathy)
  in International Conference on Future Networks (ICFN), 2009
- **A Real-Time Infrastructure based on Topology Control for Wireless Sensor Networks**
  (joint work with M. Baharloo, K. Mizanian, A. H. Jahangir)
  in Computer Society of Iran Computer Conference (CSICC), 2009
- **RACE: A Real-Time Scheduling Policy and Communication Architecture for Large-Scale Wireless Sensor Networks**
  (joint work with K. Mizanian, M. Baharloo, A. H. Jahangir)
  in Communication Networks and Services Research Conference (CNSR), 2009

Technical Reports

- **"Slow is Fast" for Wireless Sensor Networks in the Presence of Message Losses**
  (joint work with L. Zhu, M. Arumugam, M. Demirbas, and S. Kulkarni)
- **Knowledge-based Automated Repair of Authentication Protocols**
  (joint work with B. Bonakdarpour, and S. Kulkarni)

Manuscripts

- **Evaluation of mutual effect of Real-timeness on power consumption in Wireless Sensor Networks**
  Master Thesis
  Department of Computer Eng., Sharif University of Technology, 2009
- **Evaluation of NS2 simulator and implementing a sample network**
  BSc Thesis
  Department of Computer Eng., Iran University of Science and Technology, 2006

Teaching Experience

Lecturer:

- **Michigan State University**, Dept. of Computer Science and Engineering: Operating Systems (CSE 410)
- **Iran University of Science and Technology** (Behshahr branch): Computer Network (S09), Computer Architecture (S09), Operating System Lab (S09)
- **Qom University of Technology**: Discrete Mathematics (S10), C++ Programming (S10)

Teaching Assistance (TA):

- **Digital Logic Circuit**, *Bsc Course, Dept. of Computer Engineering, Sharif University of Technology* S08, F08
  Duties involved lecturing and grading homeworks.
- **Digital Logic Circuit Lab**, *Bsc Course, Dept. of Computer Engineering, Sharif University of Technology* S08, F08
  Duties involved holding office hours and designing and grading homeworks.

Computer Skills

- Model Checkers: SPIN, SMV, JPF, UPPAAL
- SMT Solvers: Z3, Yices
- Languages: C++, SystemC, Promela, Python, Matlab, Java, Timed Automata
- Network Simulators: NS2, OMNeT++, Castalia, Tossim
- Distributed Processing: MPI
- Typesetting: LaTeX, TeX, Microsoft Office

References

References will be available upon request.