Ali Dabirmoghaddam

CONTACT INFORMATION
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PRIMARY INTERESTS
Software Engineering;
Distributed Systems; Communication Networks;
System Modeling and Performance Evaluation.

EDUCATION

University of California, Santa Cruz, CA, USA

Ph.D. in Computer Engineering — Sep'10 - Sep'15

- Thesis Topic: Scalablity and Throughput of Composite Networks — GPA: 4.0 / 4.0
- Advisor: Dr. J. J. Garcia-Luna-Aceves

University of Calgary, AB, Canada

M.Sc. in Computer Science — Sep'08 - Dec'10

- Thesis Topic: Energy-Efficient Clustering in Wireless Sensor Networks — GPA: 3.9 / 4.0
- Advisors: Dr. Majid Ghaderi, Dr. Carey Williamson

Sharif University of Technology, Tehran, Iran

B.Sc. in Computer Engineering — Sep'03 - Feb'08

- Minor in Information Technology; — GPA: 16.53 / 20.00
- Thesis Topic: Mobility-Aware Topology Control and Routing in Ad-hoc Networks
- Advisor: Dr. Hamid R. Rabiee

HONORS AND AWARDS

Chancellor's Dissertation-Year Fellowship – University of California, Santa Cruz; 2014
Regents' Fellowship – University of California, Santa Cruz; 2010
Computer Science Research Award – University of Calgary; 2008, 2009
Honorary Teaching Excellence Award – University of Calgary. 2009

EXPERIENCES

Professional Experience

ABB Wireless Communication Systems — Jul'14 - Sep'14

- **Role:** Research & Development Intern
- **Project Title:** Improving Routing Algorithm for Reliability Enhancement
- **Summary:** A proprietary routing algorithm on wireless mesh routers was originally optimized for throughput. With new tweaks I made, the algorithm is now capable of making a balance between throughput and reliability depending on the application requirements.
- **Tools, Language and Platform:** Shell scripting on OpenWRT, AWK, MATLAB.

Tropos Networks — Jul'13 - Sep'13

- **Role:** Research & Development Intern
- **Project Title:** Comparative Channel Estimation in Wireless Mesh Networks
- **Summary:** I designed and implemented a novel algorithm to estimate the quality of available wireless channels and determine the best channel in terms of packet success rates. The new algorithm was integrated with the company's existing software architecture. It was also deployed and successfully tested in a real mesh network in Sunnyvale, CA.
- **Tools, Language and Platform:** C and AWK in Linux.

Academic Experience

Computer Communication Research Group (CCRG) — Sep'10 - Present

- **Role:** Graduate Research Assistant / University of California, Santa Cruz
- **Project Title:** Scalability and Throughput of Composite Networks
- **Summary:** I presented an analytical framework to investigate the interplay between a communication graph and an overlay of social relationships. I identified classes of social relationships that let the ensuing system scale.
- **Tools and Technology:** MATLAB®, OMNET++ (API in C/C++).

Experimental Lab. for Internet Systems and Apps (ELISA) Sep'08 - Sep'10

- **Role:** Graduate Research Assistant / University of Calgary
- **Project Title:** Energy-Efficient Clustering in Wireless Sensor Networks
- **Summary:** Data compression techniques are used to eliminate redundancies due to spatial correlation among nearby sensor readings. I proposed a randomized energy-efficient clustering algorithm to form optimal-sized clusters with maximum data compression.
- **Tools and Technology:** MATLAB®, OMNET++ (API in C/C++).

Teaching Assistantship

University of California, Santa Cruz

- Probability and Statistics; Discrete Mathematics.

University of Calgary

- System Modeling and Simulation; Introduction to Problem Solving using Computers.

Sharif University of Technology

- Computer Networks; Multimedia Systems.

Independent Projects

- Mensch: A multi-player network board game (Java Applet);
- MobiSim: A simulator of mobility models in mobile networks with network analysis capabilities (Java application released under GNU GPL - coauthored);
- AODV Simulator: A graphical simulator for an ad hoc routing protocol (Java);
- Text Editor: A simple text editor desktop application with basic features (Plain C).

Technical Skills

- Proficient in Java;
- Prior experience with C/C++, Python, Linux Shell-Scripting, AWK, JSP/Servlet.

Selected Refereed Publications

- **Ali Dabirmoghaddam**, Maziar M. Barijough, J. J. Garcia-Luna-Aceves, "Understanding Optimal Caching and Opportunistic Caching at the Edge of Information-Centric Networks," in Proc. *ACM Conference on Information-Centric Networks (ICN)*, Paris, France, 2014.
- **Ali Dabirmoghaddam**, J. J. Garcia-Luna-Aceves, "Proximity-driven Social Interactions and Their Impact on the Throughput Scaling of Wireless Networks," in Proc. *IEEE International Performance Computing and Communications Conference (IPCCC)*, Austin, TX, USA, 2014.
- **Ali Dabirmoghaddam**, J. J. Garcia-Luna-Aceves, "Scaling Properties of Random Networks Under Proximity-based Social Relations," in Proc. *IEEE Workshop on Network Science for Communication Networks (NetSciCom)*, Toronto, Canada, 2014.
- **Ali Dabirmoghaddam**, Majid Ghaderi, and Carey Williamson, "On the Optimal Randomized Clustering in Distributed Sensor Networks," *Computer Networks,* vol. 59, 2014.
- **Ali Dabirmoghaddam**, J. J. Garcia-Luna-Aceves, "Opportunistic Walks on Random Geometric Networks and Their Application in Scalability Analysis," in Proc. *IEEE SECON*, New Orleans, LA, USA, 2013.
- Ashok Masilamani, **Ali Dabirmoghaddam**, J. J. Garcia-Luna-Aceves, "CSIR: Cellular Scheduling with Interest-Driven Routing," in Proc. *IEEE IPCCC*, San Diego, CA, USA, 2013.
- **Ali Dabirmoghaddam**, Majid Ghaderi, and Carey Williamson, "Cluster-Based Correlated Data Gathering in Wireless Sensor Networks," in Proc. *IEEE/ACM MASCOTS*, Miami Beach, FL, USA, 2010.
- **Ali Dabirmoghaddam**, Majid Ghaderi, and Carey Williamson, "Energy-Efficient Clustering in Wireless Sensor Networks with Spatially Correlated Data," in Proc. *IEEE INFOCOM - Student Workshop (SW)*, San Diego, CA, USA, 2010.
- S. M. Mousavi, H. R. Rabiee, M. Moshref, and **A. Dabirmoghaddam**, "MobiSim: A Framework for Simulation of Mobility Models in Mobile Ad-Hoc Networks," in Proc. *IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMOB)*, White Plains, NY, USA, 2007.