Ebrahim M. Songhori

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Employment Experiences

Software Engineer Intern at Google, Mountain View, CA — Summer 2016

Software Engineer Intern at Google, Mountain View, CA — Summer 2015

Implemented a monitoring system for Google Shopping Infrastructure which observes an internal data channel, notices anomaly via statistic analysis, and issues alerts.

Software Engineer Intern at Nadco., Tehran, Iran — 2009—2010

Designed and implemented of an application and compiler for educational robots in Windows platform using C# in an robotic startup (www.nad-co.com).

Course Instructor, Tehran, Iran — 2007—2010

Instructor of sophomore and junior high school Physics.

Technical Skills

Programming languages: C++, C#, Python, Java, JavaScript, HTML/CSS; **HDL:** Verilog, VHDL;
Parallel programming: OpenMPI, OpenMP, Cilk, Cilk++, CUDA, Pthread
Other technologies: Git, Amazon EC2, Xilinx ISE, ModelSim, Xilinx AutoESL, MATLAB, MapReduce, GraphLab, Apache Hadoop

Education

d **Ph.D. in Electrical and Computer Engineering** — 2012—expected December 2016

Rice University, TX, GPA: 3.95/4
Supervisor: Dr. Farinaz Koushanfar
Graduate Courses: High Performance Computer Architecture, Advance VLSI, Parallel Computing, Fundamentals Machine Learning, Architecting Modern Learning Algorithms, Security Topics of Embedded Systems, Computational Science, Computer Architecture, Random Process, and Digital Signal Processing.

B.Sc. in Computer Engineering — 2007—2011

University of Tehran, Iran, GPA: 17.94/20
Ranked 1st out of 150 computer engineering students.
Relevant Courses: VHDL Design, Computer Architecture, VLSI, Micro-controllers, Compiler, Operating Systems, Computer Networks, Algorithm Design, Artificial Intelligence, Database, Theory of Computation and Automata.

Technical Projects

TinyGarble — 2015

Open source project for secure two-party computation based on the Garbled Circuit protocol and hardware synthesis (available in Github).

B.Sc. Honor Thesis — 2011

Communication Synthesis and Mapping to Standard on-chip Communications.

Parallel Computing Project — 2012

Implemented of Gaussian Elimination using OpenMPI, and Pthread and Bitonic sort using CUDA.

Computer Architecture Lab TA — 2011

Designed and implemented of a dynamic Huffman decoder in Verilog on FPGA.

Computer Architecture Lab — 2010

Designed and implemented of a pipelined MIPS processor in Verilog on FPGA.

Awards and Honors

Fellowship, Houston, TX 2012
Rice University ECE Graduate Fellowship.

Olympiad, Tehran, Iran 2006—2010
Silver Medal in the National Scientific Olympiads for Students in Physics.
Ranked 5^{th} among students of computer engineering of Iran Universities National Scientific Olympiads for University Students in Computer Engineering.

National Entrance Exam, Tehran, Iran 2010—2011
Ranked 16^{th} in Computer Architecture in 2011, 20^{th} in Computer Architecture, and 15^{th} in Artificial Intelligence in 2010 among 18000 students on National Entrance Exam for Master of Science.

Extracurricular Activities

President, The Duncan Hall Fridge Room Club, Rice University, Houston, TX. 2013—2014
Secretary, ACM Student Chapter, ECE, University of Tehran, Iran. 2009—2010
Editor, "88, The Reformist Students of University of Tehran", the socio-political student publication, University of Tehran, Iran. 2008—2009
Member of the general council of Student Association of University of Tehran and Tehran University of Medical Science (the main opposition and reformists political group among student associations in Iran), University of Tehran, Iran. 2008—2011
Secretary of Public Relations, The Central Council of Student Association of Collage of Engineering, University of Tehran, Iran. 2009—2010
Members of the central council of Student Association of ECE, University of Tehran, Iran. 2008—2009

Publications

Ebrahim M. Songhori, Shaza Zeitouni, Ghada Dessouky, Thomas Schneider, Ahmad-Reza Sadeghi and Farinaz Koushanfar. "GarbledCPU: A MIPS Processor for Secure Computation in Hardware." Proceedings of the 53rd Design Automation Conference (DAC) June 2016.

Ebrahim M. Songhori, Siam U. Hussain, Ahmad-Reza Sadeghi, Thomas Schneider and Farinaz Koushanfar. "TinyGarble: Highly Compressed and Scalable Sequential Garbled Circuits." Security and Privacy, 2015 IEEE Symposium on May 2015.

Ebrahim M. Songhori, Siam U. Hussain, Ahmad-Reza Sadeghi and Farinaz Koushanfar. "Compacting Privacy-Preserving k-Nearest Neighbor Search using Logic Synthesis." Proceedings of the 52nd Design Automation Conference (DAC) May 2015.

Azalia Mirhoseini, **Ebrahim M. Songhori**, Bita Darvish Rouhani, and Farinaz Koushanfar. "Flexible Transformations For Learning Big Data." In Proceedings of the 2015 ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems, June 2015.

Rouhani, Bita Darvish, **Ebrahim M. Songhori**, Azalia Mirhoseini, and Farinaz Koushanfar. "SSketch: An Automated Framework for Streaming Sketch-based Analysis of Big Data on FPGA." In Field-Programmable Custom Computing Machines (FCCM), May 2015.

Azalia Mirhoseini, Eva Dyer, **Ebrahim Songhori**, Richard Baraniuk, and Farinaz Koushanfar. "Rankmap: A platform-aware framework for distributed learning from dense datasets." arXiv preprint arXiv:1503.08169 March, 2015.

Ebrahim M. Songhori. "ShuFFLE: Automated Framework for Hardware Accelerated Iterative Big Data Analysis." Master Thesis, Rice University,April 2014.

Ebrahim M. Songhori, Azalia Mirhoseini, Xuyang Lu and Farinaz Koushanfar. "AHEAD: Automated Framework For Hardware Accelerated Iterative Data Analysis." Design, Automation and Test in Europe Conference (DATE), March 2015.

A. Mirhoseini, **E. M. Songhori**, F. Koushanfar. "Idetic: A High-level Synthesis Approach for Enabling Long Computations on Transiently-powered ASICs." IEEE Pervasive Computing and Communication (PerCom), March 2013.

A. Mirhoseini, **E. M. Songhori**, F. Koushanfar. "Automated Checkpointing for Enabling Intensive Application on Energy Harvesting Devices." IEEE Low Power Electronics and Design (ISLPED), April 2013.