

## Ebrahim M. Songhori

ECE - MS-366, Rice University  
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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](http://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

**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 1<sup>st</sup> 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 OpenMP, 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.

**Computer Aided Design**

2009

Implemented of a domain transform module of H264/AVC using VHDL on FPGA and test it with NOIS II.

**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<sup>th</sup> 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<sup>th</sup> in Computer Architecture in 2011, 20<sup>th</sup> in Computer Architecture, and 15<sup>th</sup> 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.

**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.