

# Ebrahim M. Songhori

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## Employment Experiences

- **Software Engineer at Google**, Mountain View, CA 2017—  
Working at Google Shopping Serving.
- **Software Engineer Intern at Google**, Mountain View, CA Summer 2016  
Evaluating machine learned search retrieval methods in Google Shopping.
- **Software Engineer Intern at Google**, Mountain View, CA Summer 2015  
Implemented a monitoring system for Google Shopping Serving.
- **Course Instructor**, Tehran, Iran 2007—2010  
Instructor of sophomore and junior high school Physics.

## Education

- **Ph.D. in Electrical and Computer Engineering** January 2012—May 2017  
Rice University, TX.  
Supervisor: Prof. Farinaz Koushanfar (University of California, San Diego)  
Visitor student in University of California, San Diego, CA, 2015—2017.
- **B.Sc. in Computer Engineering** 2007—2011  
University of Tehran, Iran.

## Technical Skills

- **Programming languages:** C/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

## Technical Projects

- **TinyGarble** 2015  
An open-source and academic framework for privacy-preserving computation based on the Garbled Circuit protocol and hardware synthesis (available in TinyGarble Github).

## Publications

- Mirhoseini, Azalia, Bitva Darvish Rouhani, **Ebrahim Songhori**, and Farinaz Koushanfar. “ExtDict: Extensible Dictionaries for Data- and Platform-Aware Large-Scale Learning.” In Parallel and Distributed Processing Symposium Workshops (ParLearning), 2017 IEEE International, IEEE, 2017; Won the best paper award.
- Riazi, M. Sadegh, **Ebrahim M. Songhori**, Ahmad-Reza Sadeghi, Thomas Schneider, and Farinaz Koushanfar. “Toward Practical Secure Stable Matching.” In Proceedings on Privacy Enhancing Technologies 2017, no. 1 (2017): 62-78.
- Rouhani, Bitva Darvish, Azalia Mirhoseini, **Ebrahim M. Songhori**, and Farinaz Koushanfar. “Automated Real-Time Analysis of Streaming Big and Dense Data on Reconfigurable Platforms.” ACM Transactions on Reconfigurable Technology and Systems (TRETTS) 10, no. 1 (2016): 8.

- **Songhori, Ebrahim M.**, Shaza Zeitouni, Ghada Dessouky, Thomas Schneider, Ahmad-Reza Sadeghi, and Farinaz Koushanfar. “GarbledCPU: a MIPS processor for secure computation in hardware.” In Proceedings of the 53rd Annual Design Automation Conference, p. 73. ACM, 2016.
- Mirhoseini, Azalia, Bitar Darvish Rouhani, **Ebrahim M. Songhori**, and Farinaz Koushanfar. “Performance-ML: performance optimized machine learning by platform and content aware customization.” In Proceedings of the 53rd Annual Design Automation Conference, p. 20. ACM, 2016.
- Mirhoseini, Azalia, Bitar Darvish Rouhani, **Ebrahim Songhori**, and Farinaz Koushanfar. “Chime: Checkpointing long computations on intermittently energized IoT devices.” In IEEE Transactions on Multi-Scale Computing Systems (TMSCS), p. 1. IEEE, 2016.
- **Songhori, Ebrahim M.**, Siam U. Hussain, Ahmad-Reza Sadeghi, Thomas Schneider, and Farinaz Koushanfar. “TinyGarble: Highly compressed and scalable sequential garbled circuits.” In Security and Privacy (SP), 2015 IEEE Symposium on, pp. 411-428. IEEE, 2015.
- **Songhori, Ebrahim M.**, Siam U. Hussain, Ahmad-Reza Sadeghi, and Farinaz Koushanfar. “Compacting privacy-preserving k-nearest neighbor search using logic synthesis.” In Design Automation Conference (DAC), 2015 52nd ACM/EDAC/IEEE, pp. 1-6. IEEE, 2015.
- **Songhori, Ebrahim M.**, Azalia Mirhoseini, Xuyang Lu, and Farinaz Koushanfar. “AHEAD: automated framework for hardware accelerated iterative data analysis.” In Proceedings of the 2015 Design, Automation & Test in Europe Conference & Exhibition (DATE), pp. 942-947. EDA Consortium, 2015.
- Rouhani, Bitar Darvish, **Ebrahim M. Songhori**, Azalia Mirhoseini, and Farinaz Koushanfar. “SS-ketch: An Automated Framework for Streaming Sketch-based Analysis of Big Data on FPGA.” In Field-Programmable Custom Computing Machines (FCCM), 2015 IEEE 23rd Annual International Symposium on, pp. 187-194. IEEE, 2015.
- Mirhoseini, Azalia, Eva Dyer, **Ebrahim M. Songhori**, Richard Baraniuk, and Farinaz Koushanfar. “Rankmap: A platform-aware framework for distributed learning from dense datasets.” arXiv preprint arXiv:1503.08169, 2015.
- Mirhoseini, Azalia, **Ebrahim M. Songhori**, Bitar 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, pp. 453-454. ACM, 2015.
- **Songhori, Ebrahim M.** “ShuFFLE: Automated framework for hardware accelerated iterative big data analysis.” Master Thesis, Rice University April, 2014.
- Mirhoseini, Azalia, **Ebrahim M. Songhori**, and Farinaz Koushanfar. “Idetic: A high-level synthesis approach for enabling long computations on transiently-powered ASICs.” In Pervasive Computing and Communications (PerCom), 2013 IEEE International Conference on, pp. 216-224. IEEE, 2013.
- Mirhoseini, Azalia, **Ebrahim M. Songhori**, and Farinaz Koushanfar. “Automated checkpointing for enabling intensive applications on energy harvesting devices.” In Proceedings of the 2013 International Symposium on Low Power Electronics and Design, pp. 27-32. IEEE Press, 2013.

#### 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.

### **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
- Secretary of Public Relations, The Central Council of Student Association of Collage of Engineering, University of Tehran, Iran. 2009—2010