

# Curriculum Vitae of Amir H. ASHOURI



## Personal Data

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**Date of birth:** November 4, 1985 - Tehran, IRAN  
**Status:** Permanent Resident (PR) of Canada  
**Email:** [amirhossein.ashouri@gmail.com](mailto:amirhossein.ashouri@gmail.com)  
**Webpage:** <http://home.deib.polimi.it/ashouri>

## Education

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### • January 2013 – December 2016

**Ph.D.** in Computer Science and Engineering  
Politecnico Di Milano (<http://www.polimi.it>)  
Computer Architecture and Embedded Systems Group (<http://sagroup.ws.dei.polimi.it/>)  
**Final Thesis:** Compiler Autotuning using Machine Learning Techniques  
(<https://www.politesi.polimi.it/handle/10589/129561>) (**Grade:** Cum laude)  
Advisors: [Cristina Silvano](#), [Gianluca Palermo](#), [John Cavazos](#)

### • September 2010 – December 2012

**M.Sc.** in Computer Engineering  
Politecnico Di Milano (<http://www.polimi.it>)  
**Final Thesis:** Design Space Exploration Methodology For Compiler Parameters in VLIW Processors  
(<https://www.politesi.polimi.it/handle/10589/72083>) (**Grade:** 109/110 – A+)

### • January 2005 – Oct 2009

**B.Sc.** in Information Technology Engineering  
Iran University of Science and Technology (<http://www.iust.ac.ir>)

## Teaching Experience

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- (Mar 2014– July 2016) Teaching assistant (3 editions), "Advance Computer Architecture", Politecnico Di Milano - (<http://home.deib.polimi.it/silvano/ARC-MULTIMEDIA.htm>)
- (Mar 2014- April 2014) Invited Seminars, "Compilers Code Optimizations and Transformation", Politecnico Di Milano - (<http://home.deib.polimi.it/ashouri/courses/compiler2014.html>)

## Research Interests

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- Auto-tuning and Machine Learning Applications
- Computer Architecture
- High Performance Computing (HPC)

## Selected Publications

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- **[BOOK]** A. H. Ashouri, J. Cavazos, G. Palermo, and C. Silvano. "Compiler Autotuning using Machine Learning." *SpringerBriefs* (To be published in late 2017).
- **[J3]** A. H. Ashouri, W. Killian, J. Cavazos, G. Palermo, and C. Silvano. "A Survey on Compiler Autotuning using Machine Learning." *ACM Transactions on Computing Survey (CSUR)* (2017)- *Under Peer-review*.

- **[J2]** A. H. Ashouri, A. Bignoli, G. Palermo, C. Silvano, S. Kulkarni and J. Cavazos. "MiCOMP: Mitigating The Compiler Phase-ordering Problem using Optimization Sub-sequences and Machine Learning." *ACM Transactions on Architecture and Code Optimization (TACO)* (2017) – *Under Major Revision*.
- **[J1]** A. H. Ashouri, G. Mariani, G. Palermo, E.J. Park, J. Cavazos, and C. Silvano. "COBAYN: Compiler Autotuning Framework Using Bayesian Networks." *ACM Transactions on Architecture and Code Optimization (TACO)* 13, no. 2 (2016): 21.
- **[C2]** A. H. Ashouri, G. Mariani, G. Palermo and C. Silvano, "A Bayesian Network Approach for Compiler Auto-tuning for Embedded Processors", *IEEE 12th Symposium on Embedded Systems for Real-time Multimedia (ESTIMedia)*, IEEE 2014
- **[C1]** A. H. Ashouri, S. Xydis, V. Zaccaria, G. Palermo and C. Silvano, "A Framework for Compiler-level Statistical Analysis over Customized VLIW architecture", 21st IFIP/IEEE International Conference on Very Large Scale Integration (**VLSI-SoC**), October 2013, IEEE 2013, Istanbul, Turkey

## Research Experience

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### At High Performance Computing and Compiler lab (Supervisor: **John Cavazos**) – University of Delaware (USA) (<http://www.eecis.udel.edu/~cavazos/>)

- (Dec 2014- March 2016) Collaborating research on compiler optimization for multi/many core systems, targeting power consumption and performance utilizing LLVM-OpenMP, Intel-ICC, etc.
- (Sep 2014- March 2016) Conducting research on compiler optimization using different fine-grain kernel characterizations and utilizing machine learning for compiler auto-tuning utilizing GCC, GCC-ARM

### At System Architecture Group (Advisors: **Cristina Silvano, Gianluca Palermo**)- Politecnico Di Milano (ITALY) (<http://sagroup.elet.polimi.it/>)

- (Sep 2015- Dec 2016) collaborating research on **ANTAREX** European Funded High-performance Computing Project ([www.antarex-project.eu](http://www.antarex-project.eu)) on Compiler Phase-ordering and Application Autotuning
- (Jan 2011- July 2015) conducting research on compiler optimization, using machine learning, Design Space Exploration and Static-Dynamic analysis and building tool-chains targeting embedded domain architectures (ARM, VLIW) utilizing compilers such as LLVM, GCC and VEX

## Awards and Grants

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- (March 2016) Microsoft Student Research Competition (**SRC**): Travel grant to **ACM/IEEE CGO 2016**, Spain
- (November 2015) **SC 2015** (Supercomputing Conference) (<http://sc15.supercomputing.org>): Travel grant as Student Volunteer program, Texas, USA
- (July 2014- Feb 2015) **HiPEAC** (*European Network of Excellence on High Performance and Embedded Architecture and Compilers*) (<http://www.hipeac.net>): **Winner** of PhD grant for proposal on *using machine learning for compiler phase ordering*. My report has been published at: <https://www.hipeac.net/assets/public/publications/newsletter/hipeacinfo44.pdf#page=11>
- (Dec 2012- Dec 2015): **PhD Fellowship** by Ministry of Science and Technology in Italy

## Miscellaneous and Other Activities

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- *Web chair and poster-submissions chair* at DATE 2016 1<sup>st</sup> workshop on REsource Awareness and Application Auto-tuning in Adaptive and heterogeNeous compuTing (**Res4Ant**) (<http://res4ant.deib.polimi.it/>)