

Mario J. Badr

CONTACT INFORMATION

The Edward S. Rogers Department of Electrical and Computer Engineering
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University of Toronto

EDUCATION

University of Toronto, Toronto, Ontario, Canada

Ph.D., Computer Engineering, September, 2013 - Present

Dissertation: "Developing Novel Evaluation Methodologies for Assessing Multi-Threaded Applications"

Advisor: Natalie Enright Jerger

University of Toronto, Toronto, Ontario, Canada

M.A.Sc, Computer Engineering, January, 2014

Thesis: "Synthetic Traffic Models That Capture Cache Coherent Behaviour"

Advisor: Natalie Enright Jerger

University of Toronto, Toronto, Ontario, Canada

B.A.Sc, Electrical Engineering, May, 2011

RESEARCH INTERESTS

Many/multi-core architectures, cache coherence, interconnection networks, application modelling, machine learning, design space exploration.

INDUSTRY EXPERIENCE

Qualcomm Research Silicon Valley, Santa Clara, California, USA

Intern

May, 2015 - August, 2015

Used the Multicore Asynchronous Runtime Environment (MARE) to develop a complex application, with domain-specific kernels in C++, openCL, and Hexagon. Provided feedback to the MARE team on performance issues and bottlenecks.

Environment Canada, Toronto, Ontario, Canada

Intern

June, 2009 - August, 2010

Implemented new features and bug fixes for the NinJo workstation, a java-based tool for meteorologists. Notable projects include upgrading the visualization framework for lightning strikes to be faster and use significantly less memory, incorporating storm cell data for Canada, and helping to create a configurable view of weather data for a given storm cell.

AWARDS

Roberto Padovani Intern Scholarship - \$5,000

2015

Awarded to seven Qualcomm Research interns across the globe for outstanding technical contributions made during their internship.

Thomas Noakes & Queen Elizabeth II Graduate Scholarship - \$15,000

2015

Awarded for excellence in science and technology.

TA Teaching Excellence Award - \$200

2015

Awarded to four recipients across the three University of Toronto campuses based on nominations, references, and teaching philosophy.

PEER-REVIEWED PUBLICATIONS	<p>Joshua San Miguel, Mario Badr, and Natalie Enright Jerger. Load Value Approximation. In Proceedings of the International Symposium on Microarchitecture (MICRO), to appear, December 2014. (acceptance rate: 19%)</p> <p>Mario Badr and Natalie Enright Jerger. SynFull: Synthetic Traffic Models Capturing a Full Range of Cache Coherence Behaviour. In Proceedings of the International Symposium on Computer Architecture (ISCA), June 2014. (acceptance rate: 18%)</p>
WORKSHOPS, PRESENTATIONS, AND POSTERS	<p>International Workshop on Parallelism in Mobile Platforms <i>Paper</i> <i>June, 2015</i> Ajaykumar Kannan, Mario Badr, Parisa Khadem Hamedani and Natalie Enright Jerger. <i>Offloading to the GPU: An Objective Approach</i></p> <p>International Symposium on Microarchitecture <i>Poster</i> <i>December, 2014</i> Joshua San Miguel, Mario Badr, and Natalie Enright Jerger. <i>Load Value Approximation</i></p> <p>International Symposium on Computer Architecture <i>Presentation</i> <i>June, 2014</i> Mario Badr and Natalie Enright Jerger. <i>SynFull: Traffic Models Capturing Cache Coherence Behaviour</i></p>
TEACHING EXPERIENCE	<p>Engineering Strategies and Practice, 1st Year Undergraduate <i>Teaching Assistant</i> <i>Tutorials</i> Supervised students through the design process for a given project and provided feedback on written design documents, with a focus on stimulating an engineering methodology to design.</p> <p>Computer Fundamentals, 1st Year Undergraduate <i>Teaching Assistant</i> <i>Tutorials, Computer Lab</i> Taught the fundamentals of computer programming in C, including data structures, recursion, and sorting algorithms.</p> <p>Communication and Design, 2nd Year Undergraduate <i>Teaching Assistant</i> <i>Computer Lab</i> Mentored student groups in the implementation of an application that loads, visualizes, and finds routes through a street map.</p> <p>Computer Organization, 3rd Year Undergraduate <i>Teaching Assistant</i> <i>Computer Lab</i> Supervised and helped students implement a simple von Neumann processor using verilog.</p> <p>Computer Architecture, 4th Year Undergraduate & Graduate <i>Teaching Assistant</i> <i>Tutorials, Computer Lab</i> Taught computer architecture concepts, including caches, pipelining, out-of-order cores, and cache coherence.</p>
UNIVERSITY SERVICE	<p>Appointed Graduate Representative <i>2015-2016</i> Executive Committee of Faculty Council - Faculty of Applied Science & Engineering</p> <p>Graduate Representative <i>2015-2016</i></p>

Faculty Council - Faculty of Applied Science & Engineering

President 2015-2016
Electrical and Computer Engineering Graduate Students' Society

Member January - April 2014
Bargaining Support Committee

Steward 2013-2014
Canadian Union of Public Employees

Social Event Coordinator 2012-2013
Electrical and Computer Engineering Graduate Students' Society

PROFESSIONAL
DEVELOPMENT

Teaching in Higher Education 2015
One semester course
Learned more about teaching theories and styles and was observed by peers while teaching a tutorial on Computer Architecture. Also developed a course syllabus for a fictitious course.

Prospective Professors in Training 2014-2015
Thirteen Seminars, One semester course
Began preparations for becoming a professor in academia, attending several seminars and preparing a preliminary teaching dossier and research statement. Also completed a course on Teaching Engineering in Higher Education.

Mini-MBA 2015
Ten Classes
Gained an understanding of fundamental business concepts and applied what I learned in a group-based case competition.

Oral Presentation Skills 2014
Five Classes
Examined presentation structure and the use of visual aids. Exchanged feedback with peers and the instructor on individual oral presentations.

Prewriting Strategies for Developing and Organizing Your Ideas 2014
Four Classes
Learned several new strategies for developing and organizing ideas before (and during) the writing process.

NSERC Proposal Workshop 2014
Three Classes
Examined features of good and bad proposal writing, and exchanged feedback with peers on our own NSERC proposals.

Teaching Fundamentals Certificate 2012-2013
Six Workshops
Improved my teaching skills with workshops on pedagogy, research, academic integrity, and students in difficulty.