

Ioana Burcea

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Gender: Female
Citizenship: Romanian, Canadian

RESEARCH INTERESTS

Computer Architecture (focus on hardware optimizations, caches and chip multiprocessors)
Compilers (focus on hardware-software interaction and dynamic optimizations)

EDUCATION

- 2004 - present** **Ph.D. Candidate** in Electrical and Computer Engineering – University of Toronto - **GPA:** 4.0
Research Area: Computer Architecture
Research Supervisor: Prof. Andreas Moshovos
- 2002 - 2004** **M.A.Sc.** in Electrical and Computer Engineering – University of Toronto - **GPA:** 4.0
Thesis Title: XToPSS - Efficient XML Filtering Against Large Numbers of XPath Expressions
Thesis Supervisor: Professor Hans-Arno Jacobsen
- 1997 - 2002** **B.Sc.** in Computer Science and Engineering – University Politehnica of Bucharest, Romania
Final GPA: 9.95 (out of 10) – **First** of the 2002 graduating class

REFEREED PUBLICATIONS

- **Ioana Burcea**, Andreas Moshovos – “Phantom-BTB: A Virtualized Branch Target Buffer Design”, *The 14th International Conference on Architectural Support for Programming Languages and Operating Systems* - **ASPLOS 2009**
- **Ioana Burcea**, Jason Zebchuk, Andreas Moshovos – “Teaching Old Caches New Tricks: RegionTracker and Predictor Virtualization”, IEEE Pacific Rim Conference on Communications, Computers, and Signal Processing -**PacRim 2009**, invited paper
- **Ioana Burcea**, Stephen Somogyi, Andreas Moshovos, Babak Falsafi – “Predictor Virtualization”, *The 13th International Conference on Architectural Support for Programming Languages and Operating Systems* - **ASPLOS 2008**
- **Ioana Burcea**, Hans-Arno Jacobsen, Eyal de Lara, Milenko Petrovic, Vinod Muthusamy - “Disconnected Operation in Publish/Subscribe Systems” – *The 5th IEEE International Conference on Mobile Data Management* - **MDM 2004**
- Milenko Petrovic, **Ioana Burcea**, Hans-Arno Jacobsen - “S-ToPSS - Semantic Toronto Publish Subscribe System” – *The 29th International Conference on Very Large Data Bases* - **VLDB 2003**
- **Ioana Burcea**, Hans-Arno Jacobsen - “L-ToPSS - Push-Oriented Location-Based Services” – *The 4th International Workshop on Technologies for E-Services* - **TES 2003** - Collocated with VLDB 2003
- **Ioana Burcea**, Milenko Petrovic, Hans-Arno Jacobsen - “I Know What You Mean: Semantic issues in Internet-Scale Publish Subscribe Systems” – *The 1st International Workshop on Semantic Web and Databases* - **SWDB 2003** - Collocated with VLDB 2003
- Hubert Ka Ya Leung, **Ioana Burcea**, Hans-Arno Jacobsen - “Modeling Location Based Services with Subject Spaces”, International Conference of the IBM Center for Advanced Studies on Collaborative Research, **CASCON 2003**

WORK EXPERIENCE

- Jan - July 2009** Graduate Research Intern at Intel Labs, Microarchitecture Research Lab (MRL), Santa Clara
Manager: Hong Wang; Mentor: Anne Bracy
Worked with Intel's production-quality timing processor simulator
Implemented a critical path analyzer that identifies where time is spent in the out-of-order pipeline
Designed, implemented and analyzed several replacement and insertion policies for on-chip cache memories, taking data prefetching into consideration
- June 2004** Instructor, da Vinci Engineering Enrichment Program (DEEP), University of Toronto
Designed and delivered a five-day intensive course in object-oriented programming in Java, targeted at gifted high-school students

- May - Aug 2003** Research Intern, IBM Center for Advanced Studies, Toronto
Investigated the application of publish/subscribe concepts to location-based services
Research findings were included in a prototype demo presented at the technology exhibition in CASCON 2003
- 2000 - 2002** Microsoft Student Consultant, University Politehnica of Bucharest, Romania
Acted as the liaison between the Microsoft Bucharest branch and the Computer Science and Engineering Department
Delivered presentations about Microsoft technologies
Designed and deliver C++ tutorials for second year students participating in the Microsoft Lab in the Computer Science and Engineering Department

SELECTED HONORS AND AWARDS

- 2009** ECE Viola Carless Smith Research Fellowship
- 2005 - 2008** NSERC (NSF equivalent in Canada) Canada Graduate Scholarship (CGS – D3)
- 2005 - 2006** Ontario Graduate Scholarship (declined)
- May - Aug 2003** IBM Center for Advanced Studies (CAS) Fellowship
- 2002 - 2005** University of Toronto Fellowship
- 1997 – 2002** Merit grants from the National Ministry of Education, Romania
- Oct 2007** University Politehnica of Bucharest, Romania – accepted in the undergraduate program without an entrance examination due to prizes in the Romanian National Mathematics Olympiad
- 1997** "Mircea cel Batran" High school - First of the 1997 graduating class
- 1995 – 1997** Prizes and distinctions from National and District Mathematics Contests, Romania

POSTERS AND PRESENTATIONS

- July 2009** “Predictor Virtualization: Teaching Old Caches New Tricks” - invited talk, Intel Corporation, Oregon
- Mar 2009** “Phantom-BTB: A Virtualized Branch Target Buffer Design” - presentation at the International Conference on Architectural Support for Programming Languages and Operating Systems - ASPLOS
- Mar 2009** “Predictor Virtualization” - poster at the Programming Languages, Operating Systems and Architecture mentoring workshop
- Jan 2009** “Predictor Virtualization” - invited talk, Intel Labs, Santa Clara
- May 2008** “Predictor Virtualization” - Connections 2008 – ECE Graduate Symposium, University of Toronto
Best Talk Award, May 2008
- Mar 2008** “Predictor Virtualization” - invited talk, IBM Toronto Lab
- Mar 2008** “Predictor Virtualization” - presentation at the International Conference on Architectural Support for Programming Languages and Operating Systems - ASPLOS
- Oct 2003** “L-ToPSS – Push-oriented location-based services” – poster and demo presentation at the conference of the Centre for Advanced Studies on Collaborative Research - CASCON
- Sept 2003** “S-ToPSS – Semantic Toronto Publish Subscribe Systems” – poster and demo presentation at the International Conference on Very Large Data Bases - VLDB
- Sept 2003** "L-ToPSS - Push-Oriented Location-Based Services" – presentation at the 4th International Workshop Technologies for E-Services, collocated with VLDB 2003
- Aug 2003** Push-Oriented Location-Based Services” – presentation at the IBM Center for Advanced Studies

TEACHING EXPERIENCE

- 2002 - present** University of Toronto, Electrical and Computer Engineering Department
Multiple teaching assistant appointments for the following courses:
- Programming Fundamentals
 - Computer Fundamentals
 - Computer Organization
 - Computer Architecture
 - Operating Systems
 - Data Structures and Algorithms
 - Systems Design and Technical Communication
 - Software Engineering II
- May 2006** University of Toronto Teaching Assistants' Training Program (TATP) Certificate

- 2002, 2003** University of Toronto, Mechanical and Industrial Engineering
Teaching Assistant for Information Systems Infrastructure
- 2001 - 2002** Politehnica University of Bucharest, Romania
Teaching assistant for the following courses:
- Compiler Design
 - Object Oriented Programming
 - Numerical Calculus
 - Data Structures and Algorithms

COMMUNITY INVOLVEMENT

Web Co-Chair

The 17th International Conference on Parallel Architecture and Compiler Techniques (PACT 2008)

Program Committee Member

The 18th International Conference on Database and Expert Systems Applications (DEXA 2007)

External Referee

The 42nd Annual International Symposium on Microarchitecture, 2009 (MICRO 2009)
The 34th Annual International Symposium on Computer Architecture, 2007 (ISCA 2007)
The 40th Annual IEEE/ACM International Symposium on Microarchitecture, 2007 (MICRO 2007)
IEEE International Parallel & Distributed Processing Symposium, 2007 (IPDPS 2007)
The 33rd Annual International Symposium on Computer Architecture, 2006 (ISCA 2006)
The 20th ACM International Conference on Supercomputing, 2006 (ICS 2006)
The 5th ACM/IFIP/USENIX International Middleware Conference, 2004 (Middleware 2004)
The 29th International Conference on Very Large Data Bases, 2003 (VLDB 2003)

Member of ACM

Member of Special Interest Group on Computer Architecture (SIGARCH)

PROFESSIONAL SERVICE AND ACTIVITIES

Departmental Volunteering - ECE University of Toronto

Computer Group Graduate Student Orientation 2007, 2008, 2009
ECE Connections 2008 Graduate Symposium
Graduate Recruitment Event 2007, 2008
Undergraduate Recruitment Event 2006

Diversity Activities

Participant, CRA-W Programming Languages, Operating Systems and Architecture (PLOSA) mentoring workshop, March 2009
Participant, CRA-W & CDC Computer Architecture Summer School, July 2006
Participant, University of Toronto Annual Women in Academia Workshop 2005, 2007

Miscellaneous Training

Pilot Program "Prospective Professors in Training" (20 selected participants) Faculty of Applied Sciences and Engineering, University of Toronto, 2006-2007
Second International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems (ACACES), L'Aquila, Italy, July 2006