ALMA L. JUAREZ DOMINGUEZ

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EDUCATION

05/2005–present: **PhD Candidate in Computer Science**, GPA: 3.9/4.0 Supervisor: Dr. Nancy A. Day
University of Waterloo, Waterloo, Canada

- Expected graduation date: February 2011.
- Thesis Title: "Detection of Feature Interactions for Automotive Embedded Systems"
  This work characterizes and detects unsafe situations, called feature interactions, that arise when embedded components of a car, which control the dynamics of the vehicle, cause undesired or unexpected system behavior. For example, simultaneous requests of sharp steering and throttle can cause the vehicle to roll over. This work develops techniques and tools to find all potential feature interactions at design time.

09/2002–04/2005: **Master's degree in Computer Science** GPA: 3.7/4.0 Supervisor: Dr. Nancy A. Day
University of Waterloo, Waterloo, Canada

- Thesis Title: "Verification of the DFC Call Protocol Correctness Criteria"

09/1995–08/2000: **B.Sc. in Computer Science** GPA: 4.0/4.0
Benemérita Universidad Autónoma de Puebla, Puebla, México

STRENGTHS

- Analytical, assertive, creative, critical-thinker, encouraging, independent-learner, persevering, resourceful, sociable, supportive, team-player

PROFESSIONAL AND RESEARCH INTERESTS

- Software engineering, particularly the use of formal methods in model-driven development for automating analysis and verification of critical software-intensive systems, but also model-driven development in general, specification, verification, and testing, as well as system safety analysis, and static analysis.

PROFESSIONAL EXPERIENCE

05/2005–12/2008: **Research Assistant** for Professor Nancy Day, University of Waterloo. Developed techniques for the analysis of port-based distributed systems and for the detection of feature interactions in automotive embedded systems at design time.

09/2006–08/2008: **Research Associate** for Critical Systems Labs Inc. Worked on a project that involved General Motors Canada, developing techniques and tools for the automated analysis and verification of safety-critical requirements in complex software-intensive systems.

09/2003–04/2005: **Research Assistant** with the CITO project "Managing Feature Interactions among Distributed Services", sponsored by AT&T.

PROFESSIONAL DEVELOPMENT

08/2010–09/2010: **Courses:** "Software Safety Evidence", "ISO/DIS 26262 - Functional Safety Draft International Standard for Road Vehicles", "Introduction to Human Factors and System Safety", "Introduction to Software Safety", 28th Int'l Sys. Safety Conf., USA.

12/2009: **Certificate in University Teaching** from the Centre for Teaching Excellence, University of Waterloo, Canada.

08/2008: **Course:** "STAMP and STPA: A New Approach to System Safety for Complex, High-Tech Systems", 26th Int'l Sys. Safety Conf., USA.

COMPUTER LITERACY

Environments:	WINDOWS, LINUX, MAC OS X, Other Unixes
Programming:	Declarative (C, Fortran), Parallel (MPI, PVM), Functional (ML, Lisp), Logic (Prolog), Object Oriented (C++, Java), Scripting (Perl, Tcl/Tk)
Other Programs:	Modelling (MATLAB's Stateflow), Model Checkers (SMV, SPIN), Theorem Provers (HOL)
Typesetting:	HTML, CSS (Cascading Style Sheets), LaTeX, BibTeX, MS Word

PUBLICATIONS

10/2010: A. L. Juarez Dominguez. *On-the-fly Counterexample Abstraction for Model Checking Invariants*. Submitting to the 16th Int'l Conf. on Tools and Alg. for the . Construction and Analysis of Systems.

09/2008: A. L. Juarez Dominguez. *Feature Interaction Detection in the Automotive Domain*. In the Proc. of the Doctoral Symposium of the 23rd IEEE/ACM Int'l Conf. on Automated Software Engineering.

08/2008: A. L. Juarez Dominguez, N. A. Day, R. T. Fanson. *Translating Models of Automotive Features in MATLAB's Stateflow to SMV to Detect Feature Interactions*. Proc. of the 26th Int'l Sys. Safety Conf.

05/2008: A. L. Juarez Dominguez, N. A. Day, J. J. Joyce. *Modelling Feature Interactions in the Automotive Domain*. Proc. of the 2008 Int'l Workshop on Modeling in Software Engineering.

08/2007: A. L. Juarez Dominguez, J. J. Joyce, R. Debouk. *Feature Interaction as a Source of Risk in Complex Software-intensive Systems*. Proc. of the 25th Int'l System Safety Conf.

06/2005: A. L. Juarez Dominguez, N. A. Day. *Compositional Reasoning for Port-based Distributed Systems*. Proc. of the 20th IEEE/ACM Int'l Conf. on Automated Software Engineering.

LEADERSHIP ACTIVITIES

10/2010: **Panelist and Author** in the Birds of a Feather session "Minorities without Borders: Giving Back to Developing Countries" for the Grace Hopper Celebration 2010.

05/2010 & 05/2009: **Instructor** for the course "Introduction to Programming" for the CEMC Seminar in Computer Science for Young Women, University of Waterloo. Lead the programming course for selected high school school female students from across Canada.

05/2010 : **Panelist** for Women in Computer Science, University of Waterloo.Participatedin the Graduate panel, sponsored by CRA-W.

04/2010 : **Panelist** for Women in Engineering, University of Toronto. Participated in the "Diversity in Graduate School" CRA-W panel.

12/2008 : **Panelist** for Women in Computer Science, University of Waterloo. Participated in the "Supervising Graduate Students" Information Session.

01/2008 : **Panelist** for Women in Math, University of Waterloo. Participated in the "Grad School Diaries" Session for female undergraduate students in the Math department.

01/2007 – 04/2007: **Mentor** in the Women in Math program, University of Waterloo. Guided and encouraged first-year female undergrad students in different Mathematics disciplines.

03/2005 : **Panelist** in the Women in Math Day, University of Waterloo. Lead one of the "Grad student research panel" Session for high school female students.

06/2004 & 05/2004: **Instructor** for the session "Parallel Computing: Sorting" in the Imperial Oil Seminars in Computer Science for Young Women, University of Waterloo. Created materials and guided activities to explain sequential and parallel sorting algorithms.

SCHOLARSHIPS AND AWARDS

09/2010: **Google Hispanic Network Donation** to attend the Grace Hopper Conference 2010.

09/2009: **Google Women of Color Scholarship** to attend the Grace Hopper Conference 2009.

10/2008: **Google Canada Anita Borg Memorial Scholarship Finalist**, $1,000CAD; Google, U.S.A.

08/2008: **Scientific Research and Development of the Year Award**, The International System Safety Society selected the Waterloo/GM (University of Waterloo and General Motors) Team as the recipient of the award in 2008.

05/2007–04/2009: **Cheriton Scholarship**, $10,000CAD/year; The Cheriton School of Computer Science at the University of Waterloo, Canada.

01/2007–12/2008: **NSERC Industrial Postgraduate Scholarship (IPS)** $21,000CAD/year; The Natural Sciences and Engineering Research Council of Canada (NSERC) in collaboration with the co-sponsoring companies General Motors Canada and Critical Systems Labs, Canada.

05/2006–12/2007: **International Graduate Student Doctoral Award**, $8,400CAD/year; The University of Waterloo, Canada.

09/2002–08/2004: **'Formación de Científicos y Tecnólogos' Scholarship**, $28,925CAD/year; The Consejo Nacional de Ciencia y Tecnología (CONACYT), Mexico.