

# Rajwinder Kaur Panesar-Walawege

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## O B J E C T I V E

To conduct interesting and innovative research that would lead to the successful completion of a doctorate degree.

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## S U M M A R Y

- Experience in working with safety critical systems.
- Competent at conducting independent research work.
- Capability of quickly adapting to new projects and technologies.
- Ability to work well under pressure in a dynamic and deadline oriented environment requiring close collaboration between team members.
- Good knowledge of software testing strategies and techniques, with the ability to analyze the testing needs of a project.
- Excellent oral and written communication skills.

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## E D U C A T I O N

<b>Simula Research Laboratory</b> , Oslo, Norway Ph.D Student, Department of Software Engineering	Current
<b>University of Victoria</b> , Victoria, BC, Canada M.Sc (Computer Science)	2003
<b>University of Botswana</b> , Gaborone, Botswana B.Sc (Computer Science)	1995

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## W O R K E X P E R I E N C E

**Simula Research Laboratory Oslo, Norway** **Aug 07 – To Date**

### PhD Student

The focus of my research is the certification of safety-critical embedded systems. I am currently working on a model-based methodology for creating safety cases that can be quantitatively assessed with the aid of some automation, the aim being to make the assessment of safety cases more objective and cost-effective. The above research is being conducted to fulfill the requirements for a doctoral degree.

**NavCanada**, Ottawa, Ontario **Aug 04 – Apr 07**

NAV CANADA, the country's civil air navigation services provider including air traffic control, flight information, weather briefings, aeronautical information and electronic aids to navigation.

### Software Engineer

Performed the following duties as part of the **SAATS** (Shanwick Automated Air Traffic System developed for National Air Traffic Services - UK) and **MAATS** (Military Automated Air Traffic System developed for the Department of National Defense) projects:

- Communicating and coordinating with customers to understand user requirements.
- Analysis of new requirements to determine appropriate solutions.
- Design and implementation of system modification requests.
- Performing peer-reviews on system design and code.
- Creation of module and integration tests for new functionality.
- Investigation of system defects to determine the root cause of problems and to provide viable solutions.
- Writing documentation, including design documents and functional requirements.
- Coordinating with other team members and other groups to accomplish joint tasks.
- Involved in the creation of the software process outlining how the team should carry out software enhancements such that the work performed is technically sound and done in a timely manner.

**Raytheon Systems Canada**, Richmond, British Columbia

**Oct 00 - Jul 04**

A world leader in Air Traffic Management (ATM) and Aerospace Systems.

### **Software Engineer**

**FIRSTplus** (a state-of-the-art air traffic control tower simulator used to train air traffic controllers)

- As Technical lead of the Data Preparation module developed, debugged and unit tested various subsystems of FIRSTplus and carried out code reviews and participated in top-level design work.
- Received a Team Achievement Award for hard work and dedication and an individual Achievement Award for contribution to the success of the Richmond Facility.

### **MAATS**

- Analyzed system problems and recommended solutions. Programmed, debugged and tested all approved solutions. Worked in an ISO 9001 certified and CMM Level 3 compliant environment.
- Coordinated the execution of regression tests for the 'Flight Management' domain. Collaborated with domain experts to resolve multiple long-standing problems with the regression test suite; this involved analyzing code, test procedures and simulation scripts.

**University of Victoria**, Victoria, BC

**Sep 98 - Apr 00 and Sep 02 - Dec 02**

### **Teaching Assistant**

- Prepared lab presentation material for a class in excess of 150 students; organized and coordinated all activities to run the practical sessions effectively.
- Assisted students in meeting academic needs, resulting in increased student satisfaction and performance. Courses taught include programming languages and introductory courses in computer science.

**ARUP Botswana, Consulting Engineers**, Gaborone, Botswana

**Mar 97 - Aug 98**

A leading consulting firm providing world-class engineering, design, planning and corporate advisory services.

### **Network Manager**

- Managed the annual IT budget of approximately \$100,000 and made presentations to management regarding suitable choices for purchase of hardware and software. Administered and maintained the local area network.

University of Botswana, Gaborone, Botswana

Aug 95 - Mar 97

#### Teaching Assistant

- Prepared lab presentation material for classes ranging from first year to fourth year computer science.
- Conducted tutorial sessions for databases, Programming Language Translation, Expert Systems Business application, C++ and Object Oriented Programming.

Botswana Accounting College, Gaborone, Botswana

Sep 96 - Dec 96

#### Lecturer

- Lecturer in Basic Computer Principles for students preparing for the NCC Computing Diploma from NCC Education, Britain.

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## P U B L I C A T I O N S

#### Articles in International Journals

S. Ali, L. Briand, H. Hemmati, and R. K. Panesar-Walawege. **A Systematic Review of the Application and Empirical Investigation of Search-based Test-Case Generation.** IEEE Transactions on Software Engineering, 2010.

#### Refereed Proceedings

R. K. Panesar-Walawege, L. Briand, M. Sabetzadeh, and T. Coq. **Characterizing the Chain of Evidence for Software Safety Cases: A Conceptual Model Based on the IEC 61508 Standard,** In: Third IEEE International Conference on Software Testing, Verification and Validation (ICST), 2010.

#### Technical Reports

Lionel Briand, Thierry Coq, Shiva Nejati, Rajwinder Panesar-Walawege, Mehrdad Sabetzadeh. **Characterizing the Chain of Evidence for Software Safety Cases: A Conceptual Model Based on the IEC 61508 Standard.** ModelME! Technical Report No. 1 -- Version 1.0, Simula Research Lab and Det Norske Veritas, October 2009.

Lionel Briand, Thierry Coq, Tonje Klykken, Shiva Nejati, Rajwinder Panesar-Walawege, Mehrdad Sabetzadeh. **Using SysML to Support Safety Certification: A Methodology and Case Study.** ModelME! Technical Report No. 2 -- Version 1.0, Simula Research Lab and Det Norske Veritas, December 2009.

S. Ali, L. C. Briand, H. Hemmati, and R. K. Panesar-Walawege. **A Systematic Review of the Application and Empirical Investigation of Search-based Test-Case Generation,** Simula Research Laboratory, 2008.

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## A W A R D S

#### University of Victoria

- 1998 Graduate Scholarship from the BC Advanced Systems Institute (ASI).
- 1998/1999 Master's Level University of Victoria Fellowship for academic excellence.

University of Botswana – 1995

- 'Vice Chancellors Prize' for the best all-round student of the year.
- 'Faculty of Science Dean's Prize' for most outstanding science student.
- 'Maryam Babangida Prize' for most outstanding final year female student.
- 'Builder's World Prize' for most outstanding female science student

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**H O B B I E S   &   I N T E R E S T S**

- Craftwork
  - Listening to music
  - Reading
  - Cooking and traveling
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