

Amin Bandali

site: bandali.eu.org

email: bandali@uwaterloo.ca

phone: available upon request

Education

Master of Mathematics (Computer Science) | 2018–present

University of Waterloo, Canada

Supervised by Dr. Nancy Day | GPA: 3.7/4.0 | Expected completion: Winter 2020

Research focusing on formal logic, model checking, and verification.

B.Sc. Honours Computer Science | 2013–2017

York University, Toronto, Canada

GPA: 7.84/9.0

Relevant courses: System Specification & Refinement, Software Requirements Eng., Software Design, Operating Systems, Computational Complexity, Design & Analysis of Algorithms.

Finished first year (2013-14) at *Carleton University* with a GPA of 11.0/12.0, then transferred to *York University* in Fall 2014.

Publications

MoDRE 2018

A Comparison of the Declarative Modelling Languages B, Dash, and TLA⁺ (pdf, bib)

Ali Abbassi, Amin Bandali, Nancy A. Day, and Jose Serna

2018 IEEE 8th International Model-Driven Requirements Engineering Workshop (MoDRE)

Work & Research Experience

Cheriton School of Computer Science, University of Waterloo | 2018–present

Instructional Apprentice (IA), Teaching Assistant (TA)

SE 465 (Software Testing and Quality Assurance): TA in Winter 2020

SE 212 (Logic and Computation): IA in Fall 2019, TA in Fall 2018

SE 463 (Software Requirements Specification and Analysis): TA in Summer 2019 and 2018

CS 136 (Elementary Algorithm Design and Data Abstraction): TA in Winter 2018

EECS Department, York University | fall 2017

Teaching Assistant

I was a TA for EECS 1012, Net-Centric Introduction to Computing, taught by Dr. Brown.

Software Engineering Lab, York University | summer 2017

Research Assistant

I worked on an implementation of *Lampsort* in Eiffel. I also extended the `mathmodels` library, implementing a `RATIONAL` class for working with arbitrarily large rational numbers.

Software Engineering Lab, York University | summer 2016

Research Student

As an undergraduate research student, I worked on *Literate Unit-B*, the verifier for Unit-B, a new formal method focused on formal verification of reactive, concurrent and distributed systems.

From the Literate Unit-B codebase (written in Haskell), I decoupled the logic module and used it to build *Unit-B Web*, a web interface using Literate Unit-B to do predicate calculus proofs. Unit-B Web, also written in Haskell, supports the \LaTeX syntax of the Unit-B logic, renders user input on the page, and calls the sequent prover of the logic module, which uses the `z3` SMT solver to check the validity of user input.

Further, I separated Literate Unit-B's type checker from its parser, allowing easier substitution of other type checking algorithms and in preparation for implementing subtyping.

Conference Presentations

CUCSC 2017

The Magic of Specifications and Type Systems (slides), at Canadian Undergraduate Computer Science Conference, University of Toronto, Canada, Jun 15–17 2017.

Lassonde USSR Conference 2017

The Magic of Specifications and Type Systems (poster), at Lassonde Undergraduate Summer Student Research Conference, York University, Toronto, Canada, August 15, 2017.

Professional Experience

Lotek Wireless Inc., Newmarket, Canada | summer 2015 & 2016

Software Developer

Designed and implemented various applications in C# and C to test and analyze a satellite pass prediction algorithm for predicting the pass windows of Argos satellites, for scheduling send times of data collected by company's wildlife tracking products.

Designed and developed an Employee Portal web application in C# and the MVC framework, used by employees for accessing various data catalogs and archives.

Athlete Builder, Ottawa, Canada | 2013–2014

Software Developer

Developed the Backend of Athlete Builder platform in C# and MVC.

Was a key role in development of the platform core.

Developed the alpha version of Athlete Builder Android app in Java.

Volunteer Activities

EmacsConf 2019, emacsconf.org/2019 | fall 2019

Organizer

I was the chief organizer for EmacsConf 2019, and in charge of maintaining and overseeing the EmacsConf infrastructure, including our streaming servers.

Computer Science Club, University of Waterloo, Canada | summer 2019–present

Systems Committee

I'm a member of the CSC syscom at the University of Waterloo, operating and maintaining the club's fleet of GNU/Linux servers.

EmacsConf 2015, emacsconf.org/2015 | summer 2015

Organizer

I was one of the organizers and in charge of setting up and maintaining several vital pieces of the EmacsConf infrastructure.

VONICAL Inc., Ottawa, Canada | spring 2013

Application Developer

As a volunteer, worked on development of EARN (Employment Accessibility Resource Network) portal using the Anahita social networking platform, in PHP under Linux.

Hire Works Inc., Ottawa, Canada | winter 2013

Mobile & Web Developer

As a volunteer, I worked on a variety of web and mobile projects for Hire Works, Inc.

St. Brigid's Summer Camp, Ottawa, Canada | summer 2012

Web Developer

As a volunteer, I re-designed and coded (from scratch) an updated and revamped version of the photo gallery section of St. Brigid Summer Camp's website in PHP and JavaScript. A refactored version of my code is deployed and being used.

Recent Projects

george-mode: Emacs major mode for editing George files.

Source code available at <https://git.sr.ht/~bandali/george-mode>

alloy-catalyst: Framework for performance analysis of Alloy models.

Source code available at <https://git.uwaterloo.ca/bandali/alloy-catalyst>

Unit-B Web: The web interface for Unit-B, as mentioned in the *Research Experience* section.

Source code available at <https://github.com/unitb/unitb-web>

tex2png-hs: A tool for easily converting TEX and $\text{L}\text{A}\text{T}\text{E}\text{X}$ to PNG images. *tex2png-hs* is a Haskell port of Xy^{ne}'s *tex2png* tool. It is a wrapper around *latex* and *dvipng* and provides several options for modifying its behaviour, such as cropping the whitespace around the content, specifying the DPI, or inputting a full document.

Source code available at <https://github.com/unitb/tex2png-hs>

For more projects, visit my personal site at <https://bandali.eu.org>.

Miscellaneous

Programming Languages: Haskell, Python, C, Emacs Lisp, Guile, Eiffel, Rust, C#, Java, JavaScript.

Tools: Emacs, Git, Alloy, TLA⁺, $\text{L}\text{A}\text{T}\text{E}\text{X}$, CI systems, Rodin, Liquid Haskell.

Platforms: GNU/Linux distributions including GNU Guix, Trisquel, Parabola, Debian.

Languages: Persian (mother tongue), English (fluent), French (beginner).

Last updated: February 28, 2020