Amin Bandali

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site
kelar.org/~bandali
email
bandali@gnu.org
bandali@kelar.org
bandali@uwaterloo.ca
phone
upon request via email

Summary of Qualifications

- Experience in building software in diverse areas and platforms using various programming languages such as C, C++, Python, and Haskell.
- Creating and maintaining packages for programs of varying size and complexity for package systems of several GNU/Linux distributions including Debian, Ubuntu, Trisquel, and Fedora.
- Passionate about applying scientific and engineering methods in design and implementation of software systems.
- Using formal specification techniques to find specification-level bugs early in the design stage rather than implementation.
- GNU/Linux system administration on both the client and the server side.
- Problem-solving and communication skills, honed through research and teaching roles held in graduate school, as well as holding tutorials discussing complex concepts with fellow students and peers throughout undergraduate studies and high school.
- Organizational and teamwork skills, strengthened thanks to community service in form of volunteer activities including organizing the EmacsConf conference and volunteer work for charities such as the Free Software Foundation and St. Brigid's Summer Camp.

Education

Master of Mathematics in Computer Science, University of Waterloo, 2020.

Research focus: formal logic, model checking, verification

Thesis: A Comprehensive Study of Declarative Modelling Languages

Supervisor: Dr. Nancy A. Day

GPA: 3.7/4.0

Bachelor of Science with Honours in Computer Science, York University, 2017.

Favourite courses: System Specification & Refinement, Software Requirements Engineering, Software Design, Operating Systems, Computational Complexity, Design & Analysis of Algorithms

GPA: 7.84/9.0

Research Interests

formal logic, model checking, theorem proving, verification

Publications & Presentations

The complete bibliography of my publications is available as a BibTeX bibliography file, bandali.bib.

Papers

A Comparison of the Declarative Modelling Languages B, Dash, and TLA$^+$ (**pdf**, bib)
Ali Abbassi, Amin Bandali, Nancy A. Day, Jose Serna
8th IEEE International Model-Driven Requirements Engineering Workshop, MoDRE@RE 2018

Theses

A Comprehensive Study of Declarative Modelling Languages (**pdf**, bib, hdl, info)
Amin Bandali, *Master's thesis*, University of Waterloo, July 2020.

Talks

The Net beyond the Web (**slides** (**pdf**), **notes**, bib, info)
Amin Bandali, *LibrePlanet 2022 Conference*, 20 March 2022.

Jami and how it empowers users (**pdf** (**with notes**), bib, info)
Amin Bandali, *LibrePlanet 2021 Conference*, 20 March 2021.

The Magic of Specifications and Type Systems (**slides**, **poster**, bib, info)
Amin Bandali, Simon Hudon, Jonathan S. Ostroff
Slides presented at the *Canadian Undergraduate Computer Science Conference 2017*, University of Toronto, Canada, 15–17 June 2017. Poster presented at the *Lassonde Undergraduate Summer Student Research Conference*, York University, Toronto, Canada, 15 August 2017.

Introducing YULUG (**slides**, bib, info)
Amin Bandali, slides introducing (GNU/)Linux User Group at York University (YULUG) presented at a *Computing Students Hub (CSHub)* tech talk, York University, Toronto, Canada, 12 February 2015.

Work & Research Experience

Savoir-faire Linux (SFL)

fall 2020–present — Free Software Consultant — Consultant en logiciel libre

I am part of the Jami core development team at Savoir-faire Linux, where I work on many aspects of Jami, wearing different hats. Some notable areas and responsibilities include

* maintenance and bug fixes for Jami's GTK-based `jami-gnome` C/C++ GUI, and seeing to its gradual deprecation as the team shifted focus to the development of the new Qt-based `jami-qt` GUI;
* maintaining packages of Jami (and some of its dependencies) for the deb, snap, and rpm package systems, helping bring the latest versions of Jami to users across several GNU/Linux distributions including Debian, Ubuntu, Trisquel, Fedora, and openSUSE;
* writing, editing, and publishing several articles on the Jami blog, as well as improving Jami's documentation; and
* serving as community liaison between the Jami core team and the wider free software community of Jami users, helping facilitate communications and relations between the team and the community.

Free Software Foundation (FSF)

spring 2020 — Intern

Working with the FSF tech team in a sysadmin role on a variety of tasks including installation of the Sourcehut free software forge on the FSF infrastructure for evaluation for the FSF forge project, as well as a series of enhancements for www.gnu.org.

Cheriton School of Computer Science, University of Waterloo

winter 2018–spring 2020 — TA, IA, RA[1]

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 spring 2019 and 2018.

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

Department of Electrical Engineering & Computer Science, York University

fall 2017 — Teaching Assistant

EECS 1012 (Net-Centric Introduction to Computing): TA in fall 2017, running labs and marking labs and exams

Software Engineering Lab, York University

summer 2017 — Research Assistant

Worked on an implementation of Lampsort in Eiffel. Extended the mathmodels library, implementing a rational class for working with arbitrarily large rational numbers.

summer 2016 — Research Student

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), 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.

Separated Literate Unit-B's type checker from its parser in a large refactoring, allowing easier substitution of other type checking algorithms, and in preparation for implementing subtyping.

Lotek Wireless Inc.

winter & summer 2016 — Software Developer

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

summer 2015 — Computer Programmer

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

[1] Teaching Assistant (marking exams and assignments), Instructional Apprentice (holding tutorials and marking), Research Assistant (doing research for/with supervisor)

Athlete Builder

2013–2014 — Software Developer

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

Key role in development of the platform core.

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

Skills

Programming

C, C++, Haskell, Emacs Lisp, Guile Scheme, Python, Eiffel, Bash, C#, Java, JavaScript

Tools

GNU Emacs, Git, Alloy, TLA+, ProB, LaTeX, continuous integration systems

Platforms

GNU/Linux distributions including Trisquel (Ubuntu deriv.), Parabola (Arch deriv.), GNU Guix, Debian

Languages

Persian (mother tongue), English (native proficiency; IELTS: 9.0), French (beginner)

Community Service

GNU Project

— Assistant GNUisance and member of the GNU Advisory Committee.

— GNU (co)maintainer of GNUzilla and IceCat (the GNU version of the Mozilla suite and the Firefox browser respectively) and Jami.

— Maintainer of ERC, the powerful, modular, and extensible IRC client distributed with GNU Emacs and on GNU ELPA.

— Committer and regular contributor to GNU Emacs.

— GNU webmaster and Savannah hacker/admin.

EmacsConf conference

2019–present

Organizer, maintainer of (wholly free) conference infrastructure.

2015

One of the organizers and in charge of setting up and maintaining vital pieces of infrastructure.

Computer Science Club (CSC) of the University of Waterloo

— Served as the CSC System Administrator in Winter and Spring 2020. Present member of the CSC Systems Committee, overseeing and maintaining a large fleet of GNU/Linux servers for CSC members, as well as running the CSC mirror for free software projects.

— Notable projects include launching the CSC web IRC client as part of an effort in bringing modern user freedom- and privacy-respecting communication tools to club members.

Volunteer work

spring 2013 — Application Developer for VONICAL Inc.

Worked on development of the Employment Accessibility Resource Network (EARN) portal using the Anahita social networking platform, written in PHP and running on GNU/Linux.

winter 2013 — Mobile & Web Developer for Hire Works Inc.

Worked on a variety of web and mobile development projects for Hire Works.

summer 2012 — Web Developer for St. Brigid's Summer Camp

Redesigned and revamped the codebase for the photo gallery section of the camp's website in PHP and JavaScript.