Mark Armstrong

Software Engineer, M.Sc. Computer Science

email markparmstrong@gmail.com
phone 289-689-8404
web armkeh.github.io
github github.com/armkeh

Objectives

- Put my backend, DevOps experience and programming language theory knowledge to use building interesting, meaningful software.
- Work with excellent people, in a culture fostering learning, teaching and growth.
- Learn new languages, tools, and patterns.
- Take opportunities, either professional or personal, to contribute back to open source projects.

Skills

Programming

- **Proficient** Go, Emacs Lisp
- **Experienced** Kotlin, C, Python, Typescript, bash & zsh
- **Familiar** Java, Ruby, Scala, Elm, Haskell, SML

Other software proficiencies

Docker, LXD, Kubernetes, Helm, GitLab CI/CD, ArgoCD, Ansible, MySQL, PostgreSQL, Redis, Keycloak, Linux, Cucumber/Gherkin, Jira, Confluence, Emacs, Org mode, LaTeX

Soft skills

- Teaching and mentoring
- Literate programming
- Mental health support

Teachables

- Principles of programming languages/programming language design
- Discrete math and logic
- Theory of computation
- Software specification and correctness
- Functional programming

Experience

Software Engineer — Kubra, Mississauga ON, Mar 2025 - Present

- Developing APIs in Kotlin as a member of the customer experience team.

Software Engineer — Index Exchange, Toronto ON, Sept 2021 - Sept 2024

- Worked on the core application API team, developing APIs in Go.
  - Focus on user/account management, authentication and authorization.
  - Incorporated technologies including Ansible and Redis.
- Practiced DevOps using Docker, Kubernetes, Helm, GitLab CI/CD and ArgoCD.

Sessional faculty — McMaster University, Hamilton ON, 2014 - Dec 2020

- 5 appointments for teaching "Principles of Programming Languages".
- Planned and prepared lecture materials and assignments/tests including both written and programming evaluations.
- Supervised teaching assistants.

Teaching assistant — McMaster University, Hamilton ON, 2014 - Apr 2021

- 15 appointments, primarily to courses on programming language theory and discrete mathematics.
- Prepared and led tutorial sessions and office hours, marked student work.
- In some instances, appointed to supervise other teaching assistants.

Research assistant — McMaster University, Hamilton ON, Summers 2010 and 2012

- Independently researched on topics selected by supervising professors.

Embedded Systems Test Dev, Intern — Blackberry, Mississauga ON, May 2011 - Aug 2012

- Developed automated tests and test systems for Blackberry GPS systems.

Portfolio

Full version at armkeh.github.io

Project	Contributions	Skills
consistent-window-splits (Emacs package)	Creator, sole contributor	Emacs Lisp
Ansible community.general Keycloak modules	PR #9494	Python, Ansible, Keycloak
Sample Breakout game	Creator, sole contributor	Typescript, GitHub actions, Excalibur.js engine
org-agda-mode (Emacs package)	Co-creator, contributor	Emacs Lisp
unicode-sty (LaTeX package)	Co-creator, contributor	LaTeX, GitHub pages (armkeh.github.io/unicode-sty/)

Education

Ph.D. in Computer Science (incomplete) — McMaster University, Hamilton ON, 2015 - 2022

- Investigated mechanising models of computability over real numbers using automated proof assistants.
- 3rd place in 2019 McMaster Computing and Software poster competition.
- Coursework and comprehensive examinations completed. Thesis not completed.
- GPA: 11.75 on 12 point scale.

M.Sc. in Computer Science — McMaster University, Hamilton ON, 2013 - 2015

- Investigated classical computability results in context of computability over real numbers.
- GPA: 11.75 on 12 point scale. Graduated with distinction.

B.A.Sc. in Computer Science — McMaster University, Hamilton ON, 2008 - 2013

- Awards each year for academic excellence and/or highest GPA in computer science program.
  - Including Gerald L. Keech medal for highest graduating GPA in computer science, 2013.
- GPA: 11.1 on 12 point scale. Graduated with distinction.

Publications

- Armstrong, Mark & Zucker, Jeffery, Notions of semicomputability in topological algebras over the reals, Computability, vol. 8, no. 1, pp. 1-26, 2018

Awards

Graduate studies scholarships and fellowships

Name	Years held	Value
NSERC Postgraduate Scholarship, Doctoral	2017 - 2019	$42,000
Ontario Graduate Fellowship	2016 - 2017	$12,000
Dean's Excellence Engineering Doctoral Award	2015 - 2018	$127,500[1]
NSERC Canadian Graduate Scholarship, Masters	2014 - 2015	$17,500
Ontario Graduate Scholarship	2013 - 2014	$15,000

1. Included guaranteed teaching assistant employment income for those years.

Extracurricular

- Maintaining my setup/configs for Emacs and other tools (https://github.com/armkeh/dotfiles), to build a collection of well-documented tips and tricks.
- Represented McMaster Computing and Software at the Ontario Universities Fair in 2015 and 2016.
- Church secretary, board member, music and youth leader, and kids programming volunteer at Hamilton Mountain Church of the Nazarene, 2007-2015.