# Mark Armstrong

Software Engineer, M.Sc. Computer Science

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| 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** 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

## Employment

| Software Engineer | Index Exchange, Toronto ON, Sept 2021 - Sept 2024 |
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- 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 |
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- 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 |
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- 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 |
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- Independently researched on topics selected by supervising professors.

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

- Coursework and comprehensive exams completed. Thesis not completed.
- Mechanising models of computability using automated proof assistants.
- 3$^{rd}$ place in 2019 McMaster Computing and Software poster competition.
- 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 |

- Summer 2010 research project on (theoretical) models of concurrency.
- Summer 2013 research project on mechanising mathematical knowledge.
- 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, 2019

## 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.

### Other

| Name | Date | Value | Description |
| --- | --- | --- | --- |
| Gerald L. Keech Medal | 2013 | —— | For highest graduating GPA in program that year. |
| Ruth and Jack Hall Prize | 2011 | $225 | For highest 3$^{rd}$ year GPA in program. |
| Dr. Harry Lyman Hooker Scholarship | 2011 | $1500 | For academic excellence. |
| Createch Scholarship | 2010 | $1000 | For highest 2$^{nd}$ year GPA in program. |
| Nortel Networks Scholarship | 2009 | $1000 | For academic excellence. |
| McMaster entry scholarship | 2008 | $2000 | |

## 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.

This document available in multiple formats from https://github.com/armkeh/resume/.