

# Mark Armstrong

Ph.D. candidate

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github	github.com/armkeh

## Education

Ph.D. in Computer Science	McMaster University, 2015 - Present
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- Mechanising models of computability theory.
- 3<sup>rd</sup> place in 2019 Computing and Software poster competition.
- GPA: 11.75 on 12 point scale.

M.Sc. in Computer Science	McMaster University, 2013 - 2015
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- Investigated results from classical computability theory in the context of computability over the real numbers.
- GPA: 11.75 on 12 point scale. Graduated with distinction.

B.A.Sc. in Computer Science	McMaster University, 2008 - 2013
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- Research projects:
  - Summer 2010: on (theoretical) models of concurrency with Dr. Ryszard Janicki.
  - Summer 2013: on mechanising mathematical knowledge with Dr. Jacques Carette.
- GPA: 11.1 on 12 point scale. Graduated with distinction. On Dean's Honour List in every year.

## Employment

Sessional faculty	McMaster University, 2013 - Present
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- 4 appointments for Computer Science 3MI3, "Principles of Programming Languages".
- Planned and prepared lecture materials and assignments/tests including both written and programming evaluations.
- Supervised teaching assistants.
- Current course contents can be viewed at <https://armkeh.github.io/principles-of-programming-languages/>

Teaching assistant	McMaster University, 2013 - Dec 2019
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- 13 appointments, primarily to courses on programming language theory and discrete mathematics.
- Prepared and led tutorial sessions and office hours, marked student work.
- In some cases, appointed to supervise other teaching assistants.

Research assistant	McMaster University, Summers 2010 and 2012
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- Independently carried out research on topics selected by supervising professors.

Embedded Systems Test Dev, Intern	Blackberry, May 2011 - Aug 2012
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- Developed automated tests and testing systems for the GPS system of the BB10 operating system.

## Objectives

- Gaining further skills related to computer science and discrete mathematics teaching.
- Employment in software development. In particular, I aim to develop software which exhibits
  - *functional design*,
  - *correctness*, and
  - *generous documentation*.
- Learning new languages and design patterns.
- Gaining further experience with medium and large-scale development projects.

## Skills

### Programming

- **Expert** Agda, Emacs lisp
- **Experienced** C
- **Familiar** Elm, Purescript, Haskell, SML, Python, Ruby, Prolog, Bash
- **Learning** Javascript, Scala

### Other software proficiencies

- **Version control** Git, subversion
- **Tools** Docker, LXD, Emacs, Org mode, L<sup>A</sup>T<sub>E</sub>X

### Soft skills

- Mentoring
- Literate programming
- Educated on supporting student mental health
  - McMaster "Professor Hippo on Campus" training completed

### Teachables

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

## 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 <sup>1</sup>
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 <sup>rd</sup> year GPA in program.
Dr. Harry Lyman Hooker Scholarship	2011	\$1500	For academic excellence.
Createch Scholarship	2010	\$1000	For highest 2 <sup>nd</sup> year GPA in program.
Nortel Networks Scholarship	2009	\$1000	For academic excellence.
McMaster entry scholarship	2008	\$2000	

## Extracurricular

- Father of two.
- Blog at <https://armkeh.github.io>.
- Occasional school trip volunteer at R.A. Riddell Elementary since 2016.
- 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.