Lucas Matthew Dutton

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EDUCATION

McMaster University, Ontario, Canada

- Bachelor of Engineering, Software (Co-op) — Sep 2016 – Apr 2021
  - Completed level 2 of a 4-year engineering program.
  - Maintained a high GPA of 3.9 out of 4.0 grade point system.

EXPERIENCE

Research Assistant, McMaster University/IBM — May 2018 – Aug 2019

- In collaboration with IBM, implemented and tested new hardware instructions and algorithms using a Haskell DSL and C under the supervision of Dr. Christopher Anand.
- Published research paper which was among the 23 accepted submissions of 68 for IBM CASCON 2018.
- Researched single-precision sigmoid function implementation for machine learning applications.

Teaching Assistant, McMaster University — Sep 2018, 2019 – Dec 2018, 2019

- Tutored two different second year courses: Discrete Mathematics 1, Principles of Programming
- Responsible for teaching tutorial sessions and holding office hours to help students.
- Graded and created problem sets for student assignments in the Principles of Programming course.
- Fixed front-end issues with the proof checker CalcCheck used in Discrete Mathematics 1 by taking student feedback and discussing with the instructor.

CLUBS

McMaster Competitive Programming Team, VP Finance

- Participate in discussions and practice using algorithms to solve questions in competitive programming.
- Represented McMaster University at the 2018 International Collegiate Programming Contest - secured 31st place on McMaster Tulip.

PROJECTS

CalcCheck, CalcCheckWeb - Haskell/Haste

An online proof checker for developing and verifying calculational proofs written by Dr. Wolfram Kahl.

- Handled front-end improvements and content development such as creating new exercises and proofs.
- Discussed future ideas and features for CalcCheck which includes authentication, logging and new proof-specific support.

finsm.io - Elm

A lightweight program to construct and test finite state machines

- Developed with another McMaster student to provide an alternative application to build, simulate and export finite state machines
- Used by students in McMaster's second year finite automata to submit assignments

NewYouthHack & Petri App Land

A web application developed for reimagining youth settlement services in Canada

- Contributed to back-end and front-end feature implementation using Petri App Land, a custom framework using Haskell and Elm
- Co-authored a research paper to be presented at the 20th International Conference on Innovations for Community Services

AWARDS & SCHOLARSHIPS

- Project of the Year, IBM CASCON 2018 — Oct 2018
  Member of the research team of the CAS Project "Exploring Approximation Algorithms for Instruction Scheduling"
- Dean's Honour List, McMaster University — 2017 – 2018
  For obtaining a 9.5 GPA and above on at least 30 units for each school year.
- Principal Award, Columbia International College — Dec 2015
  Awarded to the graduating student with the highest academic average in the best six 4U courses completed in that year.

LANGUAGES

▪ Haskell ▪ Elm ▪ Agda ▪ C ▪ C++ ▪ C# ▪ Python ▪ Java ▪ HTML ▪ CSS ▪ Javascript

TECHNOLOGIES

▪ Linux ▪ Flask ▪ Unity ▪ Git ▪ SVN ▪ Haste