A L E X A N D E R F I S C H E R

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Education

University of Massachusetts, Amherst, MA 2016–2020

- Double majoring in computer science and mathematics.
- GPA: 4.0.

- **Relevant Computer Science Coursework–**Advanced Algorithms (graduate level, ongoing), Artificial Intelligence (ongoing), Programming Methodology (ongoing), Computer Systems Principles, Reasoning Under Uncertainty, Honors Programming with Data Structures, Introduction to Computer Science.
- **Relevant Mathematics Coursework–** Foundations of Analysis for Machine Learning (graduate level, ongoing), Abstract Algebra (ongoing), Introduction to Mathematical Cryptography, Discrete Structures, Statistics, Multivariable Calculus, Linear Algebra, Differential Equations, Modern Analysis, Complex Variables.

Skills

- **Programming Languages**–Java (including Android), C, MATLAB, HTML/CSS/Javascript.
- **Technologies**–Linux/Unix, LaTeX, Git, CUDA, Eclipse, Android Studio.

Experience

Research Experience for Undergraduates at University of Miami Summer 2017

- Wrote software to segment axons in massive 3D images of mice optic nerves to assist medical researchers studying neuron regeneration.
- Applied and implemented various computer vision algorithms.

Personal/Class Projects

- **Chamberwell**–Android game published on Google Play where one has to tilt the screen to move balls into the correct chambers. Uses Java, Android.
- **Quadratic Sieve**–implemented quadratic sieve factoring algorithm as part of cryptography group project. Uses C.
- **Mandelbrot set renderer**–renders images of the Mandelbrot set with smooth coloring and multithreading. Uses Java.
- **SPIRE autoenroller**–continuously checks if a class is open then automatically enrolls one in it if so. Uses Java, Selenium.
- See personal website (http://alexfischer.me) for more detailed information on projects.

Hackathons

- **HackHolyoke 2016**–won best hardware hack for prototype of a bike lock that could be unlocked with a phone using Bluetooth low energy. Uses Arduino, C.
- **HackUMass 2016**–created a game where a physical maze is controlled by rotating one's hand above a VR hand tracker to move a ball through the maze. Project was selected as one of Devpost's projects of the week and included in their newsletter. Uses Leap Motion, Java, Raspberry Pi, servo motors, Python.
- **HampHack 2017**–used Indico machine learning API to build an Android camera app that takes a group photo only when the right number of people are in the frame and when they are all smiling. Uses Java, Android.

Undergraduate Teaching Assistant Spring 2017

- Undergraduate TA for computer science class ‘Programming with Data Structures’.

Town of Franklin IT Department, Franklin, MA 2014–2016

- Volunteered to set up computer systems in new high school while it was under construction (summer 2014).
- Continued to volunteer with Franklin High School's IT department thereafter.

Honors and Awards

- National Merit Scholar–received corporate scholarship from MMC corporation, 2016.
- Finished second in University of Massachusetts ACM’s annual programming contest, 2016.
- Scored 18 points on 2016 Putnam Exam–national mathematics competition for undergraduate students, ranking 881st out of 4164 participants.
- Finished first in University of Massachusetts ACM’s annual Cisco programming contest, 2017.
- Finished second in 2017 Jacob-Cohen-Killam Mathematics Competition–competition for freshman and sophomores at University of Massachusetts, Amherst.