

ALEXANDER FISCHER

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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.
- **Relevant Mathematics Coursework**—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, Eclipse, Android Studio.

Experience

Research Experience for Undergraduates at University of Miami

Summer 2017

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

Personal/Class Projects

- **Chamberwell**—Android game published on the Google Play where one has to tilt the screen to transport moving 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 and Fall 2017

- Undergraduate TA for math class 'Fundamental Concepts of Mathematics' in Fall 2017.
 - Teaching discussion sections, holding office hours, and grading homework assignments.
- Undergraduate TA for computer science class 'Programming with Data Structures' in Spring 2017.
 - Graded assignments from discussion sections.

Honors and Awards

- 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.