# BENJAMIN MACMILLAN

Computer Science Student

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## EDUCATION

### B.S. COMPUTER SCIENCE | SEPT 2016 - DEC 2019

*UNIVERSITY OF WASHINGTON | SEATTLE, WA | GPA: 3.5*

Computational Finance Minor, Dean's List, Teaching Assistant, Research Assistant, Algorithmic Trading Club.

## EXPERIENCE

### MACHINE LEARNING RESEARCH ASSISTANT | FEB 2017 - PRESENT

*GEMSEC BIOMIMETICS LAB | SEATTLE, WA*

Currently researching effects of an entropic layer on the convergence speed and accuracy of a neural network in **Pytorch**. Designed and built the lab's primary relational database in **SQL** as well as the library of functions the lab uses to grab various datasets from it in **Python**.

### CSE 143 SENIOR TEACHING ASSISTANT | SEPT 2017 - SEPT 2018

*PAUL G. ALLEN SCHOOL OF COMPUTER SCIENCE | SEATTLE, WA*

Rated 4.8 / 5.0 overall by my students across 4 quarters of teaching. Taught classes of 20-25 students twice a week. Topics included recursion, linked lists, binary trees, sorting, and various algorithms for data structure manipulation. Graded homework and exams. Volunteered for extra unpaid grading hours every quarter. Mentored several new TAs.

### CSE 311 TEACHING ASSISTANT | SEPT 2018 - DEC 2018

*PAUL G. ALLEN SCHOOL OF COMPUTER SCIENCE | SEATTLE, WA*

Taught a class of 20-25 students once a week. Topics include logic and proofs, number theory, set theory, context-free grammars, graphs, finite state machines, and computability. Graded homework and exams. Held 2 hours of office hours a week.

### SOFTWARE ENGINEER INTERN | JUN 2017 - AUG 2017

*EARTHGAMES STUDIO | SEATTLE, WA*

Lead dev on team of 5. Led the design and building of 2 video games in unity, both meant to demystify certain aspects of climate change for children.

## PERSONAL PROJECTS

### PORTFOLIO OPTIMIZER

Built a program in **Python** which maximizes the Sharpe ratio of a financial portfolio, given the portfolio's assets as well as a period of time over which to optimize.

### RETINOPATHY GRADER

Designed and built a deep neural network in **TensorFlow** that could classify the retinopathy grade of a retina given a scan of it.

### CALCUSPEAK

With a team of 4, built a calculator for the visually impaired which can listen to a request and speak back the answer using various Google and Microsoft APIs.

## COURSEWORK

### COMPLETE

Data Structures and Parallelism
Discrete Structures I, II
Systems Programming
Hardware/Software Interface
System and Software Tools

### CURRENT / BY SUMMER 2019:

Algorithms
Machine Learning
Artificial Intelligence
Distributed Systems
Databases I, II
Computer Security

## SKILLS

### LANGUAGES

Python
Java
C/C++
Ruby
C#
SQL/NoSQL
JSON/XML
HTML/CSS/JS

### TOOLS

Algorithms
Data Structures
Git
Command Line
Pytorch
Pandas/Numpy
Spark
Azure/AWS