Eli MacColl

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Education

Northeastern University, Boston, MA — Expected May 2022
Bachelor of Science in Computer Engineering and Computer Science | Dual Major, GPA 3.67

Coursework: Machine Learning/Pattern Recognition, Database Design, Circuits and Signals, Algorithms, Discrete Structures, Linear Systems, Embedded Design, Digital Design, Computer Architecture, Theory of Computation, Networks, Product Prototyping, Object Oriented Design, Foundations of Cybersecurity

Interests: Wildlife Club, Guitar, Chess, Coding Challenges

Pelham Memorial High School, Pelham, NY — June 2018
Coursework: Principles of Engineering, AP Computer Science

Skills

Electronics: Microcontrollers, Multimeters, Soldering
Programming: C++, Java, Python, SQL, HTML, CSS, JavaScript, Verilog
Software: Visual Studio, MATLAB, SOLIDWORKS, AutoCAD, Linux, Simulink, Xilinx Vivado, mySQL Workbench

Engineering Projects

Image Segmentation — April 2021
- Used GMM-based clustering to segment color images in MATLAB.
- Steps: Preprocessing, MLE, 10-fold cross validation using BIC for model selection, fit new GMM and segmented the image with the number of Gaussian components

Single-Cycle MIPS Processor — September 2020 - December 2020
- Designed a fully functional single-cycle processor to carry out an inputted instruction set.
- Components: Program Counter, Instruction Memory, Instruction Decoder, Register, ALU, Multiplexers, Data Memory, Debouncer.
- Wrote behavioral Verilog code to generate components using the Xilinx Vivado 2018.3 Design Suite and the TUL PYNQ Z2 FPGA board.

Shortest Path Maze Solver — December 2020
- Used C++ to develop a program that finds the shortest path to solve an inputted maze.
- Mazes are solved using two algorithms, breadth-first search and Dijkstra's.

Experience

Research at Goodwill Computing Lab, Boston, MA — July 2021 - Ongoing
Undergraduate Explorer
- Conducting data analysis of hardware failures of the world's most powerful supercomputer, Fugaku

Northeastern Dialogue of Civilizations, San Jose, CA — May 2019 - June 2019
- Engaged in seminars with employees at major technology companies in Silicon Valley to learn about the roles and responsibilities of an engineer in the workforce.
    - AMD, Nvidia, Intel, Tesla, HP, Google, VMware, Cisco, IDT, Strongkey, ActionSpot Startup

The Picture House, Pelham, NY — Jul 2016 - July 2018
Staff Member
- Managed ticket and concession sales, special events and promotions, and contributed to the overall organization and upkeep of a historic movie theater.