Ari Fiorino

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Education

Carnegie Mellon University

- Bachelor of Science in Computer Science, May 2021
  - Minor in Discrete Mathematics and Logic
  - QPA: 3.87
- Master of Science in Computer Science, May 2022

Work Experience

Machine Learning Intern, Benji Maruyama at AFRL, May 2021 - Present

- Interned at the Air Force Research Lab using machine learning algorithms on two projects. First, training a robot to find the optimal set of parameters to synthesize carbon nanotubes. Second, training a 3d printing robot to dispense the correct amount of material to create a given shape.

Audio Research Assistant, Professor Roger Dannenberg at CMU Computer Science, May 2021 - Present

- Research assistant for the creator of Audacity. Implemented a live spectrogram tool.

Machine Learning Research Assistant, Professor Aarti Singh at CMU Computer Science, Jan. 2021 - Present

- Programmed a robot to iteratively combine vials of water and lemon juice to create a target pH solution using machine learning. Implemented the Gaussian Processes optimization algorithm from scratch which outputs a configuration to the water pumps and inputs the pH from the pH probe.

Machine Learning Research Assistant, Professor Andy Pavlo at CMU Computer Science, May 2019 - Dec. 2020

- Programmed a software tool to optimize the configuration of a database to maximize throughput. Ran experiments testing the tool and was published in an academic paper.

Programming Projects

Water Simulation, May 2021 - Present

- Implemented a water simulation from scratch in Python and C. Read extensive academic papers on eulerian fluid simulations. The algorithm solves the Navier-Stokes equations to update the field of velocities and uses the marching squares algorithm to render the water. Github Link

Fast Fourier Transform Implementation, December 2020 - January 2020

- Implemented the Fast Fourier Transform algorithm in C. Parallelized the algorithm to run on multiple processors. Used the inverse fourier transform to generate different instrument sounds such as trumpet.

Edline Helper, March 2015 - May 2018

- Created an iOS app for a grade manipulation tool for students. Students were able to view grades and calculate what they needed for an A. Edline Helper was downloaded over 80,000 times by students and parents across Montgomery County, Maryland. Also created an Android version and implemented Google Ads and Analytics tools.

Programming Skills

Languages: C, C++, Python, Java, Objective-C, Swift, C Sharp, HTML, Javascript, CUDA, SQL
Tools: AWS, Firebase, django, Metal, OpenGL, OpenMP, WebSockets, Tensorflow
Software: Xcode, Android Studio, Unity, Git and Github, LaTeX
Fluent in English and Spanish. Advanced piano player.