Michael Guan

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Education

Cornell University, *College of Engineering*, Ithaca, NY **Aug. 2018 - May 2022**

Bachelor's of Science, Computer Science
Double Minor in Electrical/Computer Engineering and Game Design
Cumulative GPA: 3.87; Dean's List(All Semesters)

Relevant Courses

Computer Science: CS 1110: Intro to Computing Using Python, CS 2112: Honors Object Oriented Programming, CS 2800: Discrete Structures, CS 3110: Functional Programming, CS 4700: Intro to Artificial Intelligence, CS 4820: Intro to Analysis of Algorithms

Electrical and Computer Engineering: ECE 2300: Digital Logic and Computer Organization, ECE 2400: Computer Systems Programming, CS 3420: Embedded Systems

Professional Experience

Pashi Corporation, *Software Engineering Intern*, San Francisco, CA **May 2020 - Sep. 2020**

- Helped create a visual programming language that eases the design, simulation, and optimization of production lines
- Implemented an Analytics App that allows users to view the production line variables in a spreadsheet like formula as well as a customizable graph that can plot the variables. Created functionality for the user to define key performance indicators.

Coding4Youth, *Computer Science Instructor*, Cupertino, CA **May 2019 - Sep. 2019**

- Introduced the foundations of the Python programming language and explored the use of graphical user interfaces using the TKinter library
- Taught and demonstrated the basics of the Java programming language as well as various game design practices.
- Aided high school students in preparing for the AP

Engineering Experience

Cornell Hyperloop, *Software Subteam Lead*, Ithaca, NY **Sep. 2019 - Present**

- Design and implement a graphical user interface to allow for human interaction with the Cornell Hyperloop pod during testing and competition. This allows users to monitor the state of the pod and receive live data from the pod sensors.
- Create a communications protocol for exchanging information between the different modules on the Hyperloop pod, including the onboard, Odroid C2 computer, the multiple Arduino units, and the Hyperloop motors and sensors.

Projects

Critter World

- Implemented a Java program to simulate artificial life and behaviors.
- Constructed an interpreted language to help create "critters" with different traits and behaviors
- Design a graphical user interface to help users visualize and interact with the critter world.

Pokémon Project

- Created a Jupyter Notebook program that utilizes machine learning algorithms to predict the type of a Pokémon based on its base statistics (Attack, Defense, HP, Speed, etc.)
- Used a Support Vector Machine and a Random Forest Classifier to create a model able to correctly classify the type approximately 26.8% of the time.

Chess Game AI

- Implemented a chess application using functional programming in OCaml and the Graphics GUI package to allow two human players to play the standard game of chess.
- Extended this game with an AI that uses a minimax game tree search algorithm enhanced using alpha-beta pruning

Skills

Languages: Python, Java, C, C++, OCaml, Javascript, HTML, CSS, SQL, Go, Haskell, PHP

Libraries: Numpy, Pandas, PyQt, React, Node, JQuery, D3.js

Tools: Unix, Git, LaTeX, JSON, Arduino, Postgres, MySQL, Jupyter Notebook