Michael Guan

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EDUCATION

Cornell University, *College of Engineering*, Ithaca, NY **Aug. 2018 - Present**
Bachelor's of Science, Computer Science *Expected May 2022*
Double Minor in Electrical/Computer Engineering and Game Design
Cumulative GPA: 3.87; Dean's List(All Semesters)

RELEVANT COURSES

Computer Science: Intro to Computing Using Python, C++ Programming, Honors Object Oriented Design and Data Structures, Discrete Structures, Functional Programming, Programming Languages and Logic, Intro to Database Systems, Operating Systems, Intro to Artificial Intelligence, Intro to Analysis of Algorithms

Electrical and Computer Engineering: Digital Logic and Computer Organization, Computer Systems Programming, Embedded Systems

PROFESSIONAL EXPERIENCE

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

- Helped create a intuitive, draggable visual programming language that eases the design, simulation, and optimization of production lines using PostgreSQL and Golang
- Implemented from end to end using Go, HTML, CSS, and Javascript an analytics app that allows users to view the production line variables and key performace indicators in a spreadsheet-like table as well as a customizable graph.

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

- Tutored eight high school students Computer Science foundations through an interactive online format
- Introduced the foundations of the Python programming language and explored the use of graphical user interfaces using the TKinter library
- Taught and demonstrated the fundamental concepts of object-oriented programming through Java Game Programming
- Aided high school students in preparing for the AP Computer Science Exam by reviewing foundational topics in Java

ENGINEERING EXPERIENCE

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

- Prepare weekly subteam meetings to discuss progress and assign team members project responsibilities
- Design and implement a graphical user interface to allow for human interaction with the Cornell Hyperloop pod during testing and competition, allowing 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 lifeforms on a hexagonal gridworld
- 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
- Create a Java Servlet to simulate a shared gridworld where users can import their individual critters

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