JOSEPH MA

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EDUCATION

Purdue University, College of Engineering – West Lafayette, IN   **May 2023**
Bachelor of Science in Computer Engineering
    Cumulative GPA **3.84**/4.00

Relevant Coursework:
- Completed: Python for Data Science, Data Structures, Microprocessor Systems and Interfacing, Signals and Systems
- Current: Artificial Intelligence, Object-Oriented programming with C++, Discrete Mathematics for Computer Engineering

Campus Involvement:
- Tau Beta Pi- Engineering Honor Society
- Hong Kong Student Association
- Society of Asian Scientists and Engineers (SASE)

The Chinese University of Hong Kong – Hong Kong   **April 2021 – June 2021**
System Development & Programming, Machine Learning with Python
- Data management with Python, Web Scraping, Data Visualization, Scikit-learn, Deep learning with TensorFlow

WORK EXPERIENCE

Purdue University School of Electrical and Computer Engineering
Undergraduate Researcher – Sequential Task based Reinforcement Learning   **May 2022 - Present**
- Seeking solutions to increase the efficiency and accuracy of training an RL agent to perform tasks sequentially.
- Developed a method of keeping track of each possible state using a binary tree of Q tables.
- Attempting to tackle the exponential increase in training time with principles of dynamic programming and memoization.

Undergraduate Teaching Assistant (ECE 368 - Data Structures)   **June 2022 – August 2022**
- Further developed leadership and communication skills as a UTA.
- Assisted up to 70 students on weekly homework and debugging programming assignments.
- Familiarized students with using tools such as Git, GitHub, Valgrind and GDB.

Undergraduate Teaching Assistant (ECE 20001 - Electrical Engineering Fundamentals 1)   **August 2021 – December 2021**
- Guided up to 32 students through core concepts of electrical engineering and linear circuits during weekly office hours.
- Graded and returned student assignments in a timely manner.

Preface Coding   **June 2021 – August 2021**
Full Stack Development Intern
- Rewrote components of the online member web portal to utilize responsive design using HTML, CSS and JavaScript.
- Implemented backend form checking using active record validations through ruby on rails.
- Gained experience on utilizing CRUD operations and testing REST APIs on the Postman API platform.

TECHNICAL SKILLS

Languages: Proficient in Python, Java, C, HTML, CSS, JavaScript, MATLAB, Verilog, Assembly
Tools: Git, GDB, React.js, Excel, Matplotlib, NumPy, Pandas, SolidWorks, EAGLE, Fusion 360, CATIA V5, STM32 ARM microcontroller

PROJECTS

Cat & Mouse   **April 2022**
- Programmed a game in C using the STM32F091 microcontroller where a cat autonomously chases a mouse controlled by the user. Implemented chasing logic using Dijkstra's algorithm. Used SPI to control LCD display and GPIO for push buttons.

Raw K-means Clustering   **June 2021**
- Wrote an algorithm to illustrate unsupervised learning on python without the help of any machine learning libraries.