

JOSEPH MA

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EDUCATION

Purdue University, College of Engineering – West Lafayette, IN
Master of Science in Electrical and Computer Engineering

Expected: December 2024

Purdue University, College of Engineering – West Lafayette, IN
Bachelor of Science in Computer Engineering

Graduated: May 2023

GPA: 3.83/4.00

Relevant Coursework:

- Artificial Intelligence (Graduate Course), Python for Data Science, Data Structures, Operating Systems Engineering

Campus Involvement:

- Hong Kong Student Association
- Eta Kappa Nu (HKN)
- Vertically Integrated Projects (VIP)

WORK EXPERIENCE

Purdue University School of Electrical and Computer Engineering – West Lafayette, IN

Undergraduate Teaching Assistant (ECE 20007/ECE 29595 – Electrical Engineering Fundamentals 1 Lab) **January 2023 – May 2023**

- Conducted biweekly office hours to aid students in understanding electronic measurement and circuit design principles.
- Collaborated during lab sessions on projects including the Wheatstone Bridge and Audio Equalizer.

Undergraduate Researcher – Sequential Task based Reinforcement Learning

May 2022 – January 2023

- Seeking solutions to increase the efficiency of training an RL agent to perform multiple 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 264 – Advanced C Programming, ECE 368 - Data Structures)

June 2022 – December 2022

- 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 – Hong Kong

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, 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.