Ryan Kwong

408-712-7557 | **ryankwong478@gmail.com**

Relevant Links: Personal Website | GitHub | LinkedIn
Programming Languages: Python, Java, JavaScript, TypeScript, C#, R, SQL, Dart, C, C++, HTML, CSS
Technologies: Git, React, Django, PostgreSQL, Flask, Angular, Linux, MongoDB, OpenCV, ROS, Unity3D, TensorFlow, AWS

EDUCATION

Purdue University - West Lafayette **December 2024**

BS in Computer Science

- GPA: 3.95/4.0
- Courses: OOP, DSA, Discrete Math, Linear Algebra, Multivariable Calculus, Programming in C, Computer Architecture

EXPERIENCE

Beaverton Kitchen Cabinet & Stone, Inc. **Beaverton, OR**

Software Engineering Intern January 2023 - May 2023

- Developed an internal data dashboard using React, Django, RESTful APIs, and PostgreSQL to display customer information and purchase history
- Architected a two-factor authentication system for the internal dashboard to strengthen security within the workplace
- Improved user organization and search efficiency with filters by reducing overall data processing time by 32%
- Created a 3D modeling software using React and Three.js that randomly generates kitchen layouts with a given inventory

Inogen **Goleta, CA**

Data Science Researcher August 2022 - May 2023

- Researched the correlations between mechanical aspects of portable air concentrators and their performance by analyzing and processing data on voltage, power, and oxygen levels
- Generated visualizations from mechanical data derived from portable oxygen concentrators using Python, SQL, R, and MongoDB to find significant associations
- Collaborated closely with full-time engineers in an Agile environment to complete backlog tasks on a weekly basis
- Utilized OpenCV and Tensorflow to create an OCR script that converts PDF files to CSV files with 95% overall accuracy for simple data storage of health documents

Autonomous Motorsports Club **West Lafayette, IN**

Software Developer for Motion Planning Subteam August 2022 - Present

- Building a go-kart that adapts and autonomously drives around random racetracks with arbitrarily placed obstacles
- Using ROS packages, SLAM, and path-finding algorithms such as A* to optimize the paths the go-kart will take

Autonomous Robotics Club **West Lafayette, IN**

Software Developer for Autonomy Subteam August 2022 - Present

- Utilizing reinforcement learning to train mini-race cars to score soccer goals autonomously
- Combining Python, ROS, and the Arduino to communicate between the racecars' software and hardware

Cupertino Robotics **Cupertino, CA**

Software Lead for FTC 7610 and FRC 2473 August 2018 - June 2022

- Integrated OpenCV libraries to detect markers for the robot to drive towards in real-time
- Achieved straight drive through PID control, gyroscope values, and error fixing
- Led a team of 5 students and taught Java, finite state machines, and how to integrate software with hardware components

PROJECTS

Machine Learning Tetris Bot | Demo + GitHub Link | (Python, TensorFlow, Keras) **2023**

- Developed a machine learning bot using a Deep Neural Network and OOP principles for optimally playing Tetris
- Utilized reinforcement learning and Q-learning strategies to find non-greedy block placements to maximize overall score

Quantitative AI Stock Prediction App | Demo + GitHub Link | (React, Django, Keras, scikit-learn) **2023**

- Training an LSTM model on historical daily closing values to predict the value of publicly traded stocks
- Users can view graphs of the predicted stock price against the actual stock price and 100 and 200-day moving averages between any year range on the full-stack web application
- Achieved an overall accuracy of 92% for predicted stock prices

AudioCanvas | Demo + GitHub Link | (React, Django, PostgreSQL, OpenAI) **2023**

- Developed a full-stack Generative AI application that allows users to record audio and generate a unique image on each submission through the utilization of OpenAI's GPT-3.5 Turbo LLM and DALL-E model
- Integrated PostgreSQL to give users the option to cache previously generated images and cut processing time by 90%

3D Dungeon Game | GitHub Link | (Unity3D, C#) **2022**

- Created a first-person fantasy dungeon game with a multitude of unique monsters and weapons using OOP design
- Implemented flood fill algorithm to generate a random dungeon map on each game start