John Ryu

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Education

University of Massachusetts Amherst (*BS, Computer Science)* December 2024
GPA: *3.75/4.0*
Relevant Coursework: *Machine Learning, Programming w/Data Structures, Introduction to Algorithms*

Professional Experience

Eyecloud.ai Jun - Aug 2023
ML Software Engineer Intern *Hangzhou, China / San Jose, CA*

- Collaborated with two different small teams of engineers in both Hangzhou and San Jose
- In Hangzhou, set up NXP i.MX 8M Plus Evaluation Kit with custom Linux Board Support Package
- Deployed an optimized text detection model to Eyecloud's Edge AI OpenNCC camera
- In San Jose, utilized OpenVino's pre-trained models to detect people in media with ~88% precision
- Trained a modified PyTorch CNN (Convolutional Neural Network) with YOLOV5 architecture to detect gunmen amongst the detected people identified by OpenVino's pre-trained models

Eyecloud.ai May - Aug 2022
ML Software Engineer Intern *San Jose, CA*

- Trained PyTorch model with YOLOV5 architecture under the guidance of a full-time engineer at the company to detect whether workers are wearing safety helmets or not
- Wrote python scripts to combine datasets of varying labeling styles into a dataset of 10,000+ images
- Wrote Google Colab scripts to remotely run image detection training in online notebooks
- Deployed and ran helmet detection model on Edge AI OpenNCC cameras using OpenNCC SDK

Additional Projects

Text CAPTCHA Solver using CNNs and CTC loss function

- Collaborated with a classmate to design a CNN Keras model to solve text CAPTCHA
- Trained model using a CTC (Connectionist Temporal Classification) loss function to both identify the locations of characters and classify them
- The model can transcribe images of text CAPTCHA to strings and solve them with ~90% accuracy, even with varying forms of distortion such as slanting, strikethrough and scaling

Optiline - An AI-powered Code Optimizer

- Worked with 4 classmates, web app provides users with code optimization functions like code debugging, refactoring and finding package dependencies to streamline prompt engineering
- Engineered prompts to ensure consistent performance across various types of code
- Utilized HTML to design front-end elements, Vitest to unit test our functions and Express and socket.io to connect our app to Google Gemini for prompting

Campuswire Analytics Web Application

- Collaborated with 6 classmates, web app provides analytics on forum posts in any selected timeframe
- Utilized Prisma and Supabase to manage and fetch forum post json data from relational databases, Jest framework to test our API and React to develop interactive front-end components

Technical Skills

Languages*:* Python, Java, JavaScript, C, HTML, CSS
Other Skills*:* PyTorch, OpenCV, Pandas, Keras, Git, React, Conda, Vitest, Jest, Prisma, Supabase, Express