Ze Yuan (Gavin) Zhang

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EDUCATION

Rice University (2019-2023) Houston, TX

Bachelor of Science in Computer Science, Bachelor of Arts in Applied Mathematics

Relevant Coursework: Data Structures and Algorithms, Discrete Math, Computer Systems, Parallel Programming, Neural Networks, Clustering Algorithms, Linear Algebra, Operations Research

GPA: 3.94, President's Honor Roll

SKILLS

Languages: Python, Java, C, MATLAB, HTML, CSS, JavaScript

Tools: Paddle, OpenCV, Flask, jQuery, Docker, Git

EXPERIENCE

Machine Learning Intern, Infobird Co. Beijing, CN | May 2021 - Jul 2021

- Designed and implemented OCR web-server for reading serial numbers using Flask, Paddle, and OpenCV to automate the customer service quality assurance process
- De-skewed images using Canny and Hough transformations with various thresholds and resolutions
- Tuned MobileNetV3 model by training with different betas, learning rates, and epochs on 1200 images
- Improved accuracy from 75% to 90% on a test set of 300 images given by clients

Research Assistant for Dr. Peter J. Varman Houston, TX | Feb 2020 - Aug 2020

- Implemented Fair-EDF, an earliest-deadline-first scheduler seeking to fulfill the same percentage of requests from different clients
- Predicted SSD response times with a decision tree with 4 nodes per branch in MATLAB
- Accomplished fast training (0.14s on a training set of 5000+ requests, 52000 observations/second) with a 15% error on average on a YACSIM simulated SSD

Analyst, Rice Undergraduate Investment Fund Houston, TX | Sep 2019 - Dec 2020

- Pitched to buy and sell stocks by working with team on qualitative, quantitative analysis (DCF)
- Researched and reported trends in the Energy and Industrial sectors as a Portfolio Review member
- Netted return of 44% on stock CLB by pitching to hold rather than sell in the Energy sector

Engineer, Rice Hyperloop Propulsion Team Houston, TX | Sep 2019 - May 2020

- Created propulsion engine of Hyperloop model by producing cold gas thrust chamber
- Produced custom fitting for connecting and adjusting 2200 PSI Nitrogen fill tank via SolidWorks
- Improved rigidity of connections between fill tank, run tank using Swagelocks

PROJECTS

OpenCV Gesture Detection Jun 2021

- Collected data for webcam based gesture recognition model using Mediapipe and OpenCV
- Trained model via 4 stage scikit-learn pipeline featuring logistic regression, gradient boosting classifier, etc.
- Detected 5 gestures in real-time using Mediapipe, OpenCV with 88% accuracy

Group-based Distraction Blocker Dec 2020

- Created a chrome extension notifying users in the same room when one user is distracted
- Coded front-end interface, tracking and communicating info with Flask server via socket.io
- Implemented Flask server communicating with rooms, detecting if user is distracted with URLs they visit

Test Set Generator for Python Programs Aug - Nov 2020

- Created Java program to generate a concise set of tests to catch buggy implementations of a function
- Coded recursive config parser and object factory, greedy minimal hitting set finder to minimize test sets
- Designed extensive black-box, white-box test-suite to ensure correctness of the generator

Bluetooth Controllable Table Tennis Serving Robot Jun - Jul 2020

- Produced table tennis serving robot with configurable hitting patterns, spins, speeds
- Created an Android bluetooth application and Arduino program to control robot
- Designed circuit using microcontroller, DC motors, servo motors, and H-Bridges