Yunquan Zhang

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EDUCATION

Cornell University   *08 / 2022 – 12 / 2023*
- Master of Engineering, Electrical and Computer Engineering (GPA: 3.73/4.0)
- Coursework: Algorithm Analysis, Data Structures, Operating Systems, Computer Vision, Machine Learning

South China University of Technology   *09 / 2017 – 06 / 2022*
- Bachelor of Engineering in Information Engineering (GPA: 3.70/4.0)

SKILLS

- Languages: Java, C, C++, Python, HTML/CSS, JavaScript, Kotlin, SQL
- Utils: Git, Docker, Spring Boot, Kafka, Nginx, Redis, Tomcat, Django, VUE

WORK EXPERIENCE

Roamer AI   *06 / 2023 – 08 / 2023*
Software Developer Intern   *New York*
- Developed search functionality (filtering, sorting, enhancing) endpoint API to handle front-end request and machine learning query response to retrieve curated data from backend using **Django REST**
- Integrated the search API with front-end to render the components using **VUE** framework
- Built machine learning residential property data warehouse using **AWS S3**, and implemented related ML infra to read, clean and visualize training data for large scale model training
- Optimized search algorithm by deploying OpenAI's CLIP model and LLM to extract information from collected data, enhancing the efficiency of searching by 30%

Guangzhou Techphant Technology Co., Ltd.   *03 / 2022 – 06 / 2022*
DevOps Engineer Intern   *Guangzhou, China*
- Developed a **Kotlin** testing framework for dev apps to test sensor Bluetooth and Wi-Fi connectivity
- Implemented monitoring dashboard of logged data, adopted by 5+ internal clients
- Maintained IT operation web system for host management, batch execution, task scheduling, monitoring, and alerting feature
- Implemented auto-release CI/CD system with **Docker, Jenkins** to deploy latest software build for the op system

PROJECTS

Campus Events Web Platform   *07 / 2022 – 02 / 2023*
Course Project
- Developed a campus events web platform based on **Spring Boot** framework and SSM principle for students to share events
- Implemented functions such as registering, logging, posting events, searching for events, sensitive word filtering, commenting, likes and following, notification and hot events ranking
- Utilized Prefix Tree algorithm for improved filtering of harmful detection; Deployed the serving flow by using **CDN** and **Nginx** to manage resource files, achieving load balancing and reverse proxy and implemented **Redis** and Caffeine to improve overall performance
- Integrated **Kafka** to build data pipeline for asynchronous notification system

Deep Learning based Image Analysis Web Application   *08 / 2022 – 12 / 2022*
M.Eng. Project
- Developed a web system utilizing **Spring** Boot frameworks and **React** JS, achieving 95.79% accuracy in image classification
- Implemented Grad-CAM and Grad-CAM++ algorithm in **PyTorch** to deliver richer feature importance analysis
- Developed a built-in AI assistant chatbot by integrating OpenAI GPT-4 API into website to answer users' questions

Oriented Water Meter Reading Recognition Application   *03 / 2022 – 06 / 2022*
Final Design Project
- Built a web application using **Flask** to demonstrate detection and recognition results and deployed it to an Amazon EC2 server
- Redesigned YOLOv5 for oriented object detection by improving model structure and adding rotation loss in loss function
- Created a custom Water Meter Reading Recognition dataset by collecting and labeling water meter pictures from real scenes
- Trained and tested the redesigned YOLOv5 model on the custom dataset, resulting in a high detection accuracy of 98.7%
- Developed water meter reading recognition function and increased recognition accuracy from 56% to 82% through implementation of OpenCV for image preprocessing

Autonomous Driving Intelligent Truck Perception Application   *03 / 2021 – 06 / 2021*
Course Project
- Created an autonomous driving truck that can track a person's movement and navigate with obstacle avoidance while following the target to the destination or be controlled remotely through a web page
- Built a Python Web Server on Raspberry Pi and developed a front-end with HTML/ CSS to control truck's speed and steering
- Collected images using camera on the truck and built a self-driving dataset to train a deep learning model using TensorFlow