GUITAO LIU

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SKILL

Programming: Python (Flask, Django, Requests, NumPy), JavaScript (TypeScript, React, Chakra-UI, Electron, Vue), Golang, HTML, CSS, Matlab
Database: MySQL, ElesticSearch, Redis, MongoDB, SQLite
Others: Docker, Vercel, RESTful, Git, OpenCV, Hackintosh, CI/CD

EXPERIENCE

Desktop Application Developer Jan 2021 – Jul 2021
Institute of Automatic Control and Detection Technology, Graduation Project, Supervisor: Prof. Jingjing Huang

- Developed a Multi-communication protocol integrated energy dispatching desktop application with Electron, React, and Chakra-UI, and built CI/CD with GitHub Actions.
- Designed deconstructed multi-layer application architecture, specified inter-layer data transfer standards, and wrapped communication protocol interfaces in the field of energy devices with FFI and vanilla JS.
- Implement other features such as dark mode, persistent storage, preference settings, etc.

Software Developer Oct 2020 – Nov 2020
Automated Vehicles based on Raspberry Pi and OpenCV, Curriculum Design

- Implemented autopilot, automatic obstacle avoidance, and Bluetooth controlling using OpenCV and Python on the Raspberry Pi 3 platform.
- Provided real-time vehicle control and vehicle video camera streaming on a web page.
- Standardized the development with Black, Flake8, isort via pre-commit.

Python Backend Developer Nov 2019 – Jun 2020
MOE Key Laboratory for Intelligent Networks and Network Security, Laboratory Intern, Supervisor: Prof. Yaodong Zhou

- Constructed backend applications using Flask framework to provide backend API for a system of visualization on millions of user records.
- Implemented endpoints follow RESTful requirements and provided standard test cases. Maintained thorough API documents.
- Established and maintained MySQL database with a scalable data structure. Developed with SQLAlchemy for ORM support. Deployed a Docker-based Elasticsearch server and performed a full-text search on the dataset.

Python Developer Mar 2020 – May 2020
Multi-Robot Exploration Simulator, Supervisor: Prof. Liangjun Ke

- Designed a multi-robot simulation program in Python with the Tkinter framework for unknown area exploration using improved market auction rules.
- Proposed a pathfinding algorithm for a single robot to identify obstacles, while also being able to simultaneously share exploration data with other robots in the local area.

Algorithm and Software Developer Jun 2018 – Aug 2019
Contemporary Undergraduate Mathematical Contest in Modeling, Team Leader, First Prize in Province Level

- Constructed two mathematical models for the faulty and non-faulty cases under the competition topic.
- Designed dynamic scheduling strategies for smart RGVs, using MATLAB simulation to obtain the RGV scheduling strategy results.
- Completed the writing of the main competition paper, Dynamic Scheduling Model for RGV.
- Organized and allocated the tasks for the team as team leader.

EDUCATION

UNIVERSITY OF OTTAWA Ottawa, Canada
Master of Engineering in Electrical and Computer Engineering Sep 2021 – Present

- Expected graduation date: April 2023

THE UNIVERSITY OF BRITISH COLUMBIA Vancouver, Canada
Summer School Jun 2019 – Aug 2019

- B+ in *Building Modern Web Application*, A in *Algorithms and the World Wide Web*

XI'AN JIAOTONG UNIVERISTY (MEMBER OF C9 LEAGUE UNIVERSITY IN CHINA) Xi'an, China
Bachelor of Engineering (with honors) in Automation Aug 2017 – Jul 2020

- Cumulative GPA: 3.96/4.3, 91.35/100, Graduation Project Grade: A+
- Awards: Honorary Graduate of Qian Xuesen College, Panasonic Education Fund Scholarship, First Prize of Social Practice Activity of the Honors Engineering Program, Excellent Student for 3 Consecutive Years, 3rd Class Scholarship