Andy Li

andyli.app   ✉ andy.li@uwaterloo.ca

Education

University of Waterloo   Bachelor of Applied Science in Computer Engineering   2020 – 2025
- Coursework: Data Structures & Algorithms, Systems Programming, Distributed Computing, Real-Time Operating Systems.

Centre of Excellence in Next Generation Networks   Machine Learning with Python Certification   Aug 2022

Skills

- **Languages:** C, C#, C++, Java, Python, JavaScript, TypeScript, Dart, MATLAB.
- **Frameworks:** Node, Express, React, React Native, Angular, Flutter, Django, Flask.
- **Data/ML:** NumPy, Pandas, PyTorch, TensorFlow, Matplotlib, Scikit-Learn, SQL, MySQL, Postgres, Sequelize, MongoDB, Redis.
- **DevOps:** AWS, Azure, Firebase, Docker, Kubernetes, Selenium, Robot Framework, Grafana, Kibana, Bash, Linux, Git, HTTP, Jira.

Experience

Software Engineering Intern @ German Aerospace Center (DLR)   Jan 2024 – Apr 2024
Stuttgart, Germany
- Engineered a Python and Flask-based back-end framework to perform steady-state heat flow calculations on thousands of batch datasets, supporting researchers in evaluating the cooling capacities of rail vehicles.
- Developed a front-end interface using React and TypeScript, introducing data upload and storage processes via an SFTP server and enhancing functionality with dynamic visualizations created using Matplotlib.
- Collaborated with researchers to build a comprehensive real-time logging system of critical operation data for trains traveling near Berlin using OpenVPN, essential for the integration of hydrogen trains in Germany.
- Created an engaging Hannover Messe 2024 demonstration using a Raspberry Pi and 3D-printed models of mobile, hydrogen fuel cell units to showcase the future of electric vehicle charging solutions, captivating over 200,000 attendees.

Software Engineering Intern @ Cineplex Entertainment   Jan 2023 – Apr 2023
Toronto, Canada
- Spearheaded the company-wide migration to automated testing with Python and Robot Framework, ensuring stringent quality standards for software services and introducing end-to-end testing functionality.
- Fortified REST API security across enterprise tools by deploying OpenID Connect and OAuth 2.0 standards.

Software Engineering Intern @ Tehama Technologies   May 2022 – Aug 2022
Ottawa, Canada
- Developed automation scripts in Bash for configuring and managing virtual servers and private subnets on AWS CloudFormation and Amazon VPC, streamlining cloud resource testing for SaaS applications.
- Created a logging and metrics pipeline using Elasticsearch, Fluentd, and Kibana, facilitating comprehensive VPN monitoring and efficient management of millions of logs across the data pipeline.

Software Engineering Intern @ KitchenMate   Sep 2021 – Dec 2021
Toronto, Canada
- Implemented real-time payment authentication within the kiosk's point-of-sale ecosystem using Stripe's API.
- Automated the seamless cooking process for the Smart Cooker using RESTful APIs in TypeScript to perform QR code dish recognition, and retrieval and processing of cooking instructions from the back-end database.

Software Engineering Intern @Waterloo Autonomous Racing   Jan 2021 – Apr 2021
Waterloo, Canada
- Built a multi-agent path planner for autonomous race cars using C++ and ROS, integrating real-time data from GPS, wheel encoders, LiDAR, radar, and camera sensors, reducing collision rates by 80%.
- Designed a racing line optimizer in C++ and MATLAB using track cloning, point mapping, automated lap timing, and boundary and collision detection for real-time racing line modeling and calibration.

Interests

- Soccer, Basketball, Hiking, Documentaries, Learning Languages, Artificial Intelligence, Cooking, Travel.