Zhichao SUN

IoT Engineer / Full-stack Developer

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Singapore

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SKILLS

- Frontend development
- Backend development
- IoT

LANGUAGES

Chinese
Native or Bilingual Proficiency

English
Full Professional Proficiency

INTERESTS

- Photographing

WORK EXPERIENCE

Research Engineer II
Multi-Energy Systems and Grids, ERI@N

05/2020 - Present *Singapore*

ERI@N stands for Energy Research Institute @NTU

- Designed and implemented a process of retrieving site data from onsite hardware assets using Modbus and publishing data collection to a cloud-based server using MQTT.
- Provided and supported a cloud interface using NodeJS for data streaming and data storage.
- Designed and implemented an event-driven architecture using RabbitMQ to facilitate the workflow of a team of four data scientists.
- Designed and implemented a trading advisory web application using ReactJS and NodeJS to visualize the historical/forecast data in a real-time dashboard, display the system event logs, and manage the system users.
- Acted as a technical liaison between teams, vendors, suppliers and investors.

Research Associate
Fuel Cell Lab, ERI@N

08/2016 - 05/2020 *Singapore*

- Cooperated with 1 team member to develop and support a SCADA system of a fuel cell and electrolyzer hybrid system by using HTML, CSS, and ReactJS for the frontend development and Node and Express for the backend development.
- Programmed and debugged several sets of control programs written in C/C++ and had them flashed into the PCBs which were integrated into different systems to enable direct control and data acquisition on the components.
- Designed, implemented, and integrated electronic control systems of a 5kW fuel cell experimental platform, a 10kW fuel cell + a 6kW electrolyzer hybrid system, and a 100W portable hydrogen on-demand fuel cell system to enable robust control and to meet safety standards.
- Designed and assemble a brunch of PCBs (printed circuit boards) for a team of 3 hydrogen energy scientists to facilitate their fundamental studies and project delivery.

EDUCATION

Master's Degree - Electrical Engineering
Southwest Jiaotong University, China

09/2014 - 06/2017 *China*

Thesis

- AN INDOOR WHEELED AUTONOMOUS TRANSPORTER SOLUTION BASED ON ROS

Exchange Program
Robotics & Automation Centre, Temasek Polytechnic, Singapore

08/2015 - 07/2016 *Singapore*

Project - Autonomous transporter

- Designed and implemented workflow of the robot like navigating itself to the charge station when reaching a preset threshold, docking itself to the charging pile and automatically executing the charging procedure when idling for a preset period.
- Refactored a lightweight web GUI running in browser of mobile devices using HTML, CSS and pure javascript to enable functions like streaming real-time navigation video and setting robot's motion path and destination on the phone.