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Shengkai (Sam) Xu

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EDUCATION

Bachelor of Science, Computer Engineering. December 2022
Concentration in Machine Learning and Minor in Mathematic
University of North Carolina at Charlotte, Charlotte, North Carolina

SKILLS

Programming: Python, C++, C, MATLAB, VHDL.
Knowledge: LoRaWAN protocols, Espressif SDK for ESP32 PyTorch & TensorFlow (machine learning applications), SolidWorks (certified by Dassault Systemes), PrusaSlider/Slic3r (3D printing slicer), National Instruments Multisim (circuitry design), Microsoft Office, Arduino IDE, AutoHotkey.
Languages: Mandarin (native), English (fluent).

EXPERIENCE

Firmware Engineer | OXIT, LLC (Website) May 2019 - Present
- Designed embedded IoT LoRa devices for custom purposes for a variety of business clients.
- Developed Raspberry Pi based applications firmware for IoT communications devices.

Researcher | NASA / NC Space Grant High Altitude Air Balloon November 2018 - January 2019
- Constructed custom functional PCB board for Arduino as an autonomous mother control unit.
- Designed robotic protection cover/gate for sensors to retrieve data in designed altitude. (Demo)

RELEVANT PROJECTS AND COURSEWORK

Machine Learning for IoT (GitHub)
- Utilized Arduino 33 BLE to train ML algorithm to recognize keyword phrases for Internet of Things applications.

Real-time Artificial Intelligence (GitHub)
- Adopted real time AI resources such as yolov5 and resnetl0l for real-time webcam object classifications.

Introduction of Robotics (GitHub)
- Constructed a two-wheeled robot for maze running using components such as servos, bumper switch, ultrasonic sensors, and proximity sensors.

Motorsport
- Rebuilt a 2006 Honda S2000 from street road car into a competitive race car for High Performance Driver Education and Short Circuit Performance Education racing.
- Developed and utilized a 125cc dirty bike engine into a competitive racing go kart.

3D Printing Server (GitHub)
- Developed a personal server using Raspberry Pi with Linux system, allowing users to control 3D printer remotely from anywhere in the world with Internet connection.

Driving Simulation (Demo)
- 3D-designed and printed simulation racing/driving accessories for immersive and affordable racing experiences at home.

ORGANIZATIONAL AFFILIATION

UNC Charlotte Formula SAE (Society of Automotive Engineers) October 2019 - Present
- Analyzed the wiring harness and prevented short-circuits during competition.
- Designed master kill-switches for electrical components failure and battery energy saving.

Charlotte Area Robotics Club February 2019 - October 2019
- Built an automatic sorting machine which sorts objects based on color using machine vision.
- Competed at the IEEE Southeast Technical, Professional, and Student Conference's Hardware Competition.