

Guo Ning (Andrew) Sue
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Education

- UC Berkeley (Electrical Engineering and Computer Science) GPA 3.80/4.00
Expected Graduation: 05/2022
- Lowell High School San Francisco (2015-2019) GPA 4.61(weighted)/4.00
- City College of San Francisco (CCSF) (2017-2019) GPA 4.00/4.00

Relevant Coursework

- Efficient Algorithms and Intractable Problems
 - Divide and Conquer, Graph Traversal, Greedy Algorithms, Linear Programming, Dynamic Programming, NP-Completeness, Quantum Algorithms
- Introduction to Artificial Intelligence
 - Bayesian methods, Markov Process, Supervised Learning, Reinforcement Learning
- Data Structure and Algorithms
 - Types of sorts and searches, Queues, Stacks, Trees, Hashing, Graphs
- Microfabrication Process and Technologies (Have clean-room experience)
 - Photolithography, Doping, Deposition, MOSFET fabrication process, Fabrication process design
- Discrete Mathematics and Probability
 - Modular arithmetic, Encryption and Error-correcting schemes, Markov Chains
- Designing Information Devices and Systems I, II
 - Linear Algebra, Analog circuit design
- Great Ideas in Computer Architecture (Machine Structures)
 - Digital circuit design, RISC-V, CPU, Cache, and Memory design

Skills

Programming Languages: Fluent in Java, Python, Familiar with C++, C, RISC-V, Javascript, Dart

Software & Tools: OpenCV, Git, Arduino/Raspberry Pi, ROS, Solidwork, serial communication protocols (UART, SPI, I2C, CAN), RISC-V, React Native, Flutter

Experience

- Instructor 6/2018-8/2018
 - Taught children 8-16 basic Computer Science concepts such as functions, loops, etc. via Processing.js and Scratch and game design with Unity game Engine
- Mentor 8/2016-12/2016
 - Taught elementary school math and science topic to elementary school students
 - Taught basic engineering design process to elementary school students through various craft projects
- Head of Programming and Electronics (FIRST Robotics Team 4159) 8/2015-6/2019
 - Programmed, built and wired robots for the FIRST Robotics Competition
 - Designed the electrical and pneumatics systems
 - Programmed and implemented PID, Trajectory planning and Computer vision algorithms
- Control group member (RoboMasters at Berkeley) 9/2019-Current
 - Program and implement SLAM, PID and Trajectory planning algorithm for the robot that competes in the annual ICRA RoboMaster AI challenge

Independent Projects

- Patented a key attachment that prevents keys to be inserted into car ignition during cases of drunk driving. (Patent pending)
 - Used ATmega328p, MQ-3 Alcohol Sensor, Microphone and solenoid for the prototype
 - ATmega has programmed with an Arduino to analysis the signal from the Alcohol Sensor and microphone to control the solenoid that controls the sleeve that prevents key insertion
 - The device is voice actuated, as the user speaks into the device, the user's breath as they speak is analyzed
- Remote Health Status monitoring system

- Designed, programmed, and created a system for a large organization (Hospital, Senior homes, company) to monitor the health status of its members.
- Comprised of a wearable shoulder strap and a mobile app to detect a user's temperature.
- Used ATTiny85, HM-10 and DS18B20 for hardware prototype and used Flutter + Cloud Firestore for mobile app
- Hot Interior Protection System (HIP)
 - Designed a warning system for use inside automobiles to warn parents/pet owners when they accidentally leave their children/pet unattended inside the vehicle during extreme climates.
 - Uses of a baby facial recognition script coupled with hardware sensors such as pressure pads and temperature sensors to detect hazardous temperatures and child/pet presence.
 - Attaches to onboard CAN network to honk horns, roll down windows to attract bystanders, and relieve child/pet condition
 - Includes a mobile app and a LED + Buzzer warning module to further attract parent and bystander attention.
- Sine, Square, and PWM signal generator
 - Designed and manufactured a signal generator capable of outputting voltage signals from 300hz to 30khz
 - Designed using Wien bridge oscillator as the main oscillation stage and other peripheral op-amps and passive components to vary frequency and amplitude
- Autonomous book reader + turner
 - Used Raspberry Pi, Raspberry Pi Camera, speaker and servos to create a book reader that outputs the text in an audio format
 - The Raspberry Pi then runs OCR using the Tesseract OCR engine and outputs it on a TTS engine for audio output on the speaker and the servo turns the page when all text is read
- Bubble
 - A mobile application designed for users to keep track of whom they encountered within social events to help with contact tracing of COVID-19
 - Written in React Native with Google Firestore