ZACH BELLAY

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EDUCATION

SANTA CLARA UNIVERSITY

Santa Clara, CA | June 2019
B.S. in Computer Engineering
GPA: 3.1/4.0

SKILLS

LANGUAGES

25+ Projects: C, Python, Arduino
5+ Projects: C++, JavaScript, Shell, HTML/CSS
Familiar: MySQL, PHP, Solidity, Matlab, Assembly, Node.js

LIBRARIES & TOOLS

Git: Github, Bitbucket
Python: OpenCV, Boto3, Flask, sklearn
AWS: S3, EC2, Lightsail
Arduino: ArduinoJSON, WiFi, PID

HARDWARE

Arduino Uno & Mega, NodeMCU ESP8266, Raspberry Pi 3

DESIGN

2D: Illustrator, Photoshop
3D: Blender, FreeCAD

COURSEWORK

COMPUTER SCIENCE

Adv. Computer Architecture
Software Engineering
Computer Architecture
Applied Machine Learning
Data Science
Computer Networks
Theory of Algorithms
Operating Systems
Web Infrastructure

MATH AND SCIENCE

Differential Equations
Intro to Probability and Statistics
Linear Algebra
Calculus I-IV
Physics I-III

LINKS

LinkedIn: /in/zachbellay
GitHub: /zachbellay

EXPERIENCE

ONEPOINTONE | Software Engineer

Jan 2018 - Present | San Jose, CA

- Created multi-camera IoT array to capture images of plants growing on a vertical plane.
- Used Python and OpenCV to remove fish-eye camera distortion from captured images.
- Used Matlab computer vision toolbox to explore thresholds for identifying plant segments.

FORD MOTOR COMPANY | Hardware and Controls Intern

Jun 2018 - Sep 2018 | Palo Alto, CA

- Developed applications for OHM (Onboard Holistic Module): an "Arduino for cars."
- Configured underlying microcontroller to use AUTOSAR MCAL, a production grade framework for automotive microcontrollers.
- Won first place in summer hackathon. Created vehicle crash data marketplace PoC using Ethereum blockchain and Interplanetary File System (IPFS). Demo on LinkedIn.

SCU ROBOTIC SYSTEMS LAB | Software Engineering Intern

Jan 2017 - Sep 2017 | Santa Clara, CA

- Created indoor vertical farming prototype.
- Used Arduino, Raspberry Pi, Python, HTML/CSS/JS.

PROJECTS

OMNIDIRECTIONAL GOLDFISH ROBOT

June 2017 – Present

- Designed omnidirectional chassis with mounted fish bowl.
- Created custom Arduino Mega shield for electrical connections.
- Developing drivers to capture goldfish position with OpenCV and translate into commands to drive robot.

BLUETOOTH MESH NETWORK

March 2018

- Created Bluetooth mesh network between Android devices to provide connectivity during network outages.
- Developed interface between Android devices and Raspberry Pi to act as gateway to internet.
- Won second place at SCU's Hack for Humanity hackathon.

WIFI BIKE TRACKER

Sept 2017 - Feb 2018

- Used NodeMCU ESP8266 (Arduino WiFi chip) to track bike location on SCU campus.
- Utilized Google Geolocation API and reported results to Python Flask server on Raspberry Pi.

FACIAL RECOGNITION DOOR

April 2017

- Prototyped door lock that unlocks with facial recognition.
- Used Raspberry Pi Camera and Python OpenCV.
- Under facial-recognition-door on GitHub.