

# ZACH BELLAY

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## EDUCATION

### SANTA CLARA UNIVERSITY

Santa Clara, CA | June 2020

M.S. in Computer Engineering

### 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 &amp; Mega, NodeMCU ESP8266, Raspberry Pi 3

### DESIGN

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

## COURSEWORK

### GRADUATE

Adv. Computer Architecture

Adv. Operating Systems (Winter 2019)

Artificial Intelligence (Spring 2019)

Mathematical Finance (Spring 2019)

### UNDERGRADUATE

Software Engineering

Computer Architecture

Applied Machine Learning

Data Science

Computer Networks

Theory of Algorithms

Operating Systems

Web Infrastructure

## 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 a 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.