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, LaTeX

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

GRADUATE
Artificial Intelligence (Spring 2019)
Mathematical Finance (Spring 2019)
Adv. Operating Systems (Winter 2019)
Adv. Computer Architecture

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 proof of concept 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 compatible 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.