

ZACH BELLAY

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EXPERIENCE

FORD MOTOR COMPANY | PRODUCT DEVELOPMENT INTERN

Jun 2019 - Sep 2019 | Palo Alto, CA

- Developed and deployed small sensor network from scratch using Kubernetes, Docker, InfluxDB, Flask, Gunicorn, LoRa, Arduino, The Things Network, LoRaWAN, and Fusion 360.

ONEPOINTONE | COMPUTER VISION INTERN

Jan 2018 - Mar 2019 | San Jose, CA

- Created multi-camera IoT array to capture images of plants growing on a vertical plane.
- Developed image processing pipeline to remove lens distortion and to perform image stitching.

FORD MOTOR COMPANY | PRODUCT DEVELOPMENT INTERN

Jun 2018 - Sep 2018 | Palo Alto, CA

- Developed applications for Ford's "Arduino for cars."
- Created vehicle crash data marketplace proof of concept using Ethereum blockchain and InterPlanetary File System.

SCU ROBOTIC SYSTEMS LAB | SOFTWARE ENGINEERING INTERN

Jan 2017 - Sep 2017 | Santa Clara, CA

- Built system to control indoor vertical farming prototype using JSON-based Raspberry Pi to Arduino serial protocol, secure RESTful API with Python Flask via TLS, and web interface for API.
- Prototype was used in a pitch that resulted in \$1.4M seed funding.

PROJECTS

ROBUST MOVING OBJECT DETECTION

June 2018 - May 2019

- Developed and implemented robust moving object detection algorithm with Python for senior design project.
- Paper accepted at SPIE Defense + Commercial Sensing Conference.

FINGERPRINT MATCHING

May 2019

- Compared SIFT, SURF, and CNN feature extraction methods for fingerprint matching on the SOCOFing fingerprint dataset.

"SELF DRIVING" FISH TANK

June 2017 - Present

- Designed omnidirectional robot with mounted fish bowl in Fusion 360.
- Developing drivers to capture goldfish position with OpenCV and translate into commands to drive robot.

AWARDS

2019	2 nd Place	Ford Summer Intern Hackathon
2019	Best in Session	Senior Design Conference
2018	1 st Place	Ford Summer Intern Hackathon
2018	2 nd Place	Hack for Humanity
2016	2 nd Place	Google Games

EDUCATION

SANTA CLARA UNIVERSITY

Santa Clara, CA | June 2020

M.S. in Computer Engineering

Pursuing thesis in GANs

GPA: 3.400/4.0

SANTA CLARA UNIVERSITY

Santa Clara, CA | June 2019

B.S. in Computer Engineering

GPA: 3.257/4.0

COURSEWORK

GRADUATE

Computer Vision I, II

Digital Signal Processing

ML & DSP on FPGA

Computational Creativity

Adv. Operating Systems

Adv. Computer Architecture

UNDERGRADUATE

Data Science

Applied Machine Learning

Theory of Algorithms

Software Engineering

Computer Networks

Operating Systems

Computer Architecture

Web Infrastructure

SKILLS

LANGUAGES

Python • C • C++ • MATLAB

JavaScript • HTML/CSS • Bash

MACHINE LEARNING & COMPUTER VISION

Keras • Scikit-learn • OpenCV

Numpy • Pandas • Jupyter

Notebook • Matplotlib

BACKEND & CLOUD

Docker • Kubernetes • Helm

MongoDB • MySQL • InfluxDB

AWS EC2 • Gunicorn • Flask

HARDWARE

Raspberry Pi • Jetson Nano

Teensy 3.2/3.6 • Arduino

Uno/Mega Soldering

CAD

Fusion 360 • Blender • 3D Printing