ZACH BELLAY

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EDUCATION

SANTA CLARA UNIVERSITY
Santa Clara, CA | June 2020
M.S. in Computer Engineering
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

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.
- Developed drivers to capture goldfish position with OpenCV and translate into commands to drive robot.

AWARDS

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