

Zach Bellay

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Objective: Passionate developer with experience in machine learning, web, and mobile dev looking to grow in a purpose-driven organization.

Education

SANTA CLARA UNIVERSITY

Master of Science, Computer Science and Engineering, June 2020

GPA: 3.5/4.0

Thesis: Deep learning (GANs) for image compression.

Bachelor of Science, Computer Science and Engineering, June 2019

GPA: 3.3/4.0

Experience

ONEPOINTONE (INDOOR VERTICAL FARMING STARTUP) | SOFTWARE ENGINEER

Jun 2020 - Present | San Jose, CA (Remote)

- Developing plant analysis service using deep learning and traditional computer vision techniques.
- Developed gradient descent based image stitching pipeline.
- Building RESTful backend and SQL tables for managing all imagery objects in the Farm.

FORD MOTOR COMPANY | PRODUCT DEVELOPMENT INTERN

Jun 2019 - Sep 2019 | Palo Alto, CA

- Prototyped and deployed test air quality sensor network from scratch. Used Docker, Kubernetes, Python Flask, AWS, Fusion 360, Arduino.
- Compared Support Vector Machines (SVM) and Convolutional Neural Network (CNN) in traffic sign detection.

ONEPOINTONE (INDOOR VERTICAL FARMING STARTUP) | COMPUTER VISION INTERN

Jan 2018 - Mar 2019 | San Jose, CA

- Utilized traditional computer vision techniques for camera calibration.
- Created multi-camera IoT array to capture images of plants on a vertical plane.

Projects

SCU-COURSE-EVALS.COM

Dec 2019 - Feb 2020

- Built website used by 300+ SCU students to aggregate quarterly course evaluations searchable by class and professor.
- Built with SQLite, SQLAlchemy, Google OAuth, Python, Flask, Bootstrap. Write up at zachbellay.com/projects/scu-course-evals.

SPELLING BEE SOLVER IOS APP

December 2020

- Built an iOS app with React Native to solve the New York Times Spelling Bee Puzzle.
- Available on the Apple App Store under Spelling Bee Solver. Code available at github.com/zachbellay/spelling-bee-solver.

SIMPLE BUDGETING REACT APP

March 2021

- Built a budgeting web-app with React and Material UI.
- Live site is available at budget.zachbellay.com and code is available at github.com/zachbellay/react-simple-budgeting-app.

"SELF DRIVING" FISH TANK

June 2017 - Present

- Designed omnidirectional robot with mounted fish bowl in Fusion 360 and developing drivers to capture goldfish position with OpenCV and translate into commands to drive robot.
- Project write up available at zachbellay.com/projects/odaf.

Skills

LANGUAGES

Python • C • C++
MATLAB • JavaScript
HTML/CSS • Bash

FRONTEND & MOBILE

React • React Native
Bootstrap • Bulma • Zola

BACKEND

Flask • FastAPI •
Gunicorn • Uvicorn •
Docker • PostgreSQL

MACHINE LEARNING & COMPUTER VISION

Pytorch • OpenCV
Scikit-learn • Numpy

Coursework

GRADUATE

Computer Vision I, II
Digital Signal Processing
Simultaneous Localization
and Mapping
ML & DSP on FPGA
Mathematical Finance
Adv. Algorithms

UNDERGRADUATE

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

Awards

2019 - 2nd Place Ford
Summer Hackathon

2019 - Best in Session
Senior Design
Conference

2018 - 1st Place Ford
Summer Hackathon

2018 - 2nd Place Hack for
Humanity