Daniel Leng

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EDUCATION

University of Southern California **Expected Graduation: May 2021**

B.S. Computer Engineering and Computer Science

Relevant Coursework: Data Structures & Algorithms, Software Engineering and Design; Embedded Systems; Probability and Statistics; Linear Circuits; Distributed Systems & the Internet of Things

WORK EXPERIENCE

Applications Engineering Intern | Hayward Quartz Technologies **May 2019 – August 2019**

Improved quality assurance by developing data acquisition, visualization, and alert systems utilizing IoT devices. Designed and implemented the following:

- Deployed thermocouple data acquisition & visualization system for critical processes on production floor
- Designed and deployed industrial programmable logic controllers with HMI & DAQ for critical production processes
- Built user-friendly Java application for tracking job status & inventory that merged existing SQL and Azure databases

Undergraduate Researcher - Simulations | Stochastics and Learning Lab **August 2019 – Present**

- Implemented reinforcement learning and inverse reinforcement learning algorithms within various simulation environments
- Deployed RL algorithm PPO as expert policy for IRL algorithms GAIL, DAgger, Max entropy
- Developed manual steering with Logitech wheel for simulation environments Carla and OpenAI Gym's CarRacing-v0

EXTRACURRICULARS

Software Engineer | mise. x USC Ivonne & Young Academy **January 2020 – Present**

- Working alongside developers to build and deploy Mise's services to select restaurants (including our pilot Bacari W. Adams)
- Currently developing OCR (optical character recognition) microservice to streamline menu images into a database

Software Lead | Autonomous Vehicle Lab **August 2019 – Present**

- Co-founded student organization that builds autonomous vehicles and drones for competitions such as IGVC
- Working on pathfinding with sensor stack (LiDAR, ultrasonic, stereo camera) for GPS waypoint navigation challenge
- Facilitate implementation of perception (localization, environment), planning (mission planning), control (path trajectory)

Electronics Engineer | USC Racing – Formula SAE Team **January 2018 – December 2019**

- Manage ECU sensors & data acquisition modules, distribute power to harness, troubleshoot electrical issues
- Perform analysis of sensor data in collaboration with chassis and powertrain teams to improve overall vehicle dynamics
- Deployed strain gauge project on USC '18 competition car to collect load distribution data in real time
- Utilized strain gauge data to perform weight reduction on A-Arm, frame, suspension package for USC '19 competition car

PROJECTS

Race On – USC Autonomous Racing Competition **January 2019 – May 2019**

- Developed program for lane, edge, curve, and stopping point detection using image processing and PID control theory
- Designed control system with throttle as function of curvature, used state systems to solve "lane-loss" problem
- Built 1 to 10 scale RC car with brush motor, servo, LiPo battery, Raspberry Pi 4 microcontroller

Algorithmic Trading | Robinhood x Alpaca **May 2019 – August 2019**

- Developed algorithm to trade in real time, evaluate performance, simulate any day of the stock market with any algorithm
- Implemented momentum based, buy on dip, HFT book order imbalance, options strategy trade algorithms
- Used Alpaca API, Polygon data stream

SKILLS

Software

- C++, Python: OpenCV, TensorFlow, Baselines
- AWS: Lambda, EC2, s3, IOT
- Node, React, MaterialUI, MongoDB

Hardware

- Arduino, Raspberry Pi, Benchtop Tools, LTSpice
- Protocols: TCP/IP, USB , SPI, I2C
- PCB Design