

Patrick Youssef

patrick.s.youssef@gmail.com

linkedin.com/in/patricksyoussef/
github.com/patricksyoussef/
patrickyoussef.com

Education

University of California, San Diego

Master of Science, Computer Science; GPA: 3.95

La Jolla, CA

Sep. 2020 – Mar. 2022

University of California, Irvine

Bachelor of Science, Mechanical Engineering; GPA: 3.5

Irvine, CA

Sep. 2016 – Mar. 2020

Experience

HyperXite - HyperLoop Competition Team

Engineering Lead (Systems, Software, & Simulation)

Irvine, CA

May. 2018 – Mar. 2020

- Managed over 30 members in high-level vehicle design, on-vehicle software, and development of high-fidelity simulations
- Corresponded with SpaceX engineers to ensure compliance/safety in critical elements of the high-level vehicle design

FIRST Robotics Team 3476

Technical Mentor (Vision & Design)

Irvine, CA

Jun. 2017 - Mar. 2020

- Coached over 20 robotics students through computer vision, controls, and mechanical design on a world-class robot

UC Irvine

Teaching Assistant (Engineering Computations)

Irvine, CA

Sep. 2017 – Dec. 2019

- Facilitated revising assignments, proctoring exams, writing exams, and conducting biweekly office hours for 3 terms
- Guided over 450 students through satisfactory teaching resources with an average overall evaluation of 3.81/4.0

SpaceX

Software Engineering Intern (Guidance, Navigation, & Control)

Hawthorne, CA

Jun. 2019 – Aug. 2019

- Overhauled simulation configuration to enable full launch-to-land simulations and reduce configuration edit time by 70%
- Automated updating 500+ legacy configurations to utilize the new structure while cleaning out deprecated sims
- Implemented Python post-simulation statistics scripts used to validate crew dragon for human flight with NASA

SpaceX

Vehicle Engineering Intern (Dragon Test Equipment)

Hawthorne, CA

Mar. 2019 – Jun. 2019

- Developed computer vision software to automate critical testing with 50% fewer errors and in 20% the time versus prior
- Led the creation of a safety system that isolates high-pressure air in 10 labs to reduce danger during an accident

JMS Materials Research Group

Researcher (Data Analysis)

Irvine, CA

May. 2017 - Sep. 2017

- Developed data processing and visualization tools in MATLAB to decrease researchers' time expense and error rates

Projects

- **Roadway Segmentation:** Implemented a U-Net with transfer learning for semantic segmentation on CityScapes
- **Deep Image Colorization:** Self-supervised grayscale image colorization using pre-trained and custom feature fusion
- **Neural Collaborative Filtering:** Predicted ratings for (user, item) pairs using the NeuMF deep learning model
- **N-Body Simulator:** Simulated orbital bodies with an RK4 integrator and novel combinatorics for fast acceleration updates
- **Other Projects:** Particle Filter SLAM, PatrickYoussef.com, Human Activity Classification, Online Store Stock Checker

Presentations

- **Internships 101:** Engaged with over 50 UC Irvine students on how to network effectively to land a dream internship
- **Effective Engineering:** Taught general steps to produce effective engineering solutions to over 75 robotics students
- **Demystifying DP:** Presented a simple method for approaching dynamic programming problems to over 15 SWEs

Skills

- **Languages:** Python, JavaScript, HTML, MATLAB, R, C++
- **Technologies:** NumPy, Matplotlib, Pandas, PyTorch, Keras, OpenCV, Gatsby, Git, Linux