

Patrick Youssef

Computer Science Graduate Student

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Education

University of California, San Diego

San Diego, California

M.S. Computer Science and Engineering - AI Depth

Sep. 2020 - Mar. 2022

- Cumulative GPA: 3.9

University of California, Irvine

Irvine, California

B.S. Mechanical Engineering

Sep. 2016 - Mar. 2020

- Cumulative GPA: 3.5 & Engineering GPA: 3.6

Work Experience

SpaceX

Hawthorne, California

GNC Software Intern

Jun. 2019 - Aug. 2019

- Overhauled simulation configuration pipeline to allow launch-to-land simulations that helped finalize crewed flight approval
- Created additional scripts for updating legacy configs to use the new configuration pipeline
- Refined flight constraint checking tools to reduce configuration edit time and enable new functionality
- Developed scripts to generate multi-simulation statistics that provided engineers insight into vehicle performance
- **Tech Stack:** Python, Bokeh, NumPy, SciPy, PyYAML, Pandas, Bash

Ground Support Equipment Intern

Mar. 2019 - Jun. 2019

- Developed computer vision software to automate patch testing saving hours of manual work and expediting Dragon's approval
- Led the creation of a safety system to automatically restrict high-pressure supply air in the event of an anomaly
- **Tech Stack:** Python, OpenCV, C++, VBA, Siemens PLC

Other Experience

HyperXite - HyperLoop Competition Team

Irvine, California

Systems Engineering Lead

May. 2018 - Mar. 2020

- Managed top-level design decisions to optimize our timeline, budget, and performance for the SpaceX HyperLoop competition
- Developed a Python systems model of the pod's propulsion system to optimize component selection and design choices
- **Tech Stack:** Python, NumPy, Matplotlib, Numerical Integration, MATLAB

Matlab For Engineering Computation Course

Irvine, California

Undergraduate Teaching Assistant

Sep. 2017 - Dec. 2019

- Adjusted course curriculum to better reflect the needs of industry and immediate academic pursuits
- Held office hours twice a week to improve staff availability and answer questions in a group setting
- Developed collaborative problems for in-class usage to promote dynamic and engaging lectures

Projects

Roadway Semantic Segmentation

Jun. 2021

- Semantic segmentation using a U-Net architecture with pre-trained VGG-19 layers on the CityScapes dataset
- Tested pre-trained vs base model as well as limited data training to see the implications of these choices
- **Tech Stack:** PyTorch, NumPy, Matplotlib, TensorBoard

Image Colorization

Mar. 2021

- Grayscale colorization using an FCN encoder and a pre-trained Inception-ResNet followed by the FCN decoder
- **Tech Stack:** PyTorch, NumPy, Matplotlib, OpenCV, TensorBoard

PatrickYoussef.com - Coding Blog and Project Portfolio

Feb. 2021

- My first deep dive into web dev outside of vanilla HTML/CSS/Javascript, look out for new content
- **Tech Stack:** Gatsby, ReactJS, MDX

Other Projects

- Complete: Particle Filter SLAM, Logistic Map Visualization, Recycle Bin Segmentation, Image Mosaic
- In-Progress: Single Shot Detector, SegFormer