

Patrick Youssef

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PatrickYoussef.com | [GitHub.com/patricksyoussef/](https://github.com/patricksyoussef/) | [LinkedIn.com/in/patricksyoussef/](https://www.linkedin.com/in/patricksyoussef/)

Education

University of California San Diego

La Jolla, CA

Master of Science in Computer Science

Sep. 2020 - Mar. 2022

- GPA 3.95/4.0, Artificial Intelligence and Robotics Focus
- Courses: Graduate Algorithms, Advanced Computer Vision, Recommender Systems, Computer Networking

University of California Irvine

Irvine, CA

Bachelor of Science in Mechanical Engineering

Sep. 2016 - Mar. 2020

- GPA 3.5/4.0, 4x Deans Honors List, Led Multiple Senior Design Teams

Skills

Programming: Python, Javascript, HTML, CSS, MATLAB, Bash, R, C++

Technologies: NumPy, PyTorch, Matplotlib, OpenCV, SciKit Suite, Keras, TensorFlow, Gatsby, Git, Linux

First Principles: Machine Learning, Optimization, Numerical Methods, Linear Algebra, Calculus, Algorithms

Work Experience

SpaceX

Hawthorne, CA

GNC Software Engineering Intern

Jun. 2019 - Aug. 2019

- Overhauled simulation pipeline to reduce edit time by 70% and enable full launch-to-land simulations
- Automated updating and cleaning over 500 legacy simulations to utilize new structure using Python/Bash
- Implemented Python post-simulation analytics scripts to validate Crew Dragon for human flight with NASA

Vehicle Engineering Intern

Mar. 2019 - Jun. 2019

- Developed OpenCV computer vision tools to automate critical testing with 50% fewer errors in 20% the time
- Led the creation of a facility-wide safety system that isolates high-pressure supply air in the event of an error

University of California Irvine

Irvine, CA

Teaching Assistant

Sep. 2017 - Dec. 2019

- Guided over 450 freshmen student through MATLAB course material with an average evaluation of 3.81/4.0
- Revised assignments, helped write and proctor exams, and held office hours twice a week for 3 terms

Projects

PatrickYoussef.com ([Website Link](http://PatrickYoussef.com))

- Home of my projects, blog posts, resume, socials, and generally my home on the web
- All posts are written in markdown and passed through a custom template with Gatsby for static site rendering

Deep Image Colorization ([Project Link](#))

- Self-supervised grayscale image colorization using pre-trained and custom feature fusion in PyTorch
- Discussed how the mean-squared error loss produces some issues for certain objects and possible solutions

N-Body Orbit Simulator ([Project Blog Post](#))

- Simulated orbital bodies with an RK4 integrator and novel combinatorics for 40% faster accelerations updates
- Built up to a partial solar system simulation running for over 30 years of run time while maintaining orbits

Neural Collaborative Filtering

- Predicted ratings for (user, item) pairs using a PyTorch recreation of the NeuMF deep learning model
- Compared variations of hyperparameters for each part of the network to reduce model loss by 30%