Patrick Youssef

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Education

University of California, San Diego — La Jolla, CA
Master of Science in Computer Science & Engineering; GPA: 3.95 — *Sep. 2020 – Mar. 2022*

University of California, Irvine — Irvine, CA
Bachelor of Science in Mechanical Engineering; GPA: 3.5 — *Sep. 2016 – Mar. 2020*

Experience

SpaceX — Hawthorne, CA
Software Engineering Intern – Guidance, Navigation, & Control — *Jun. 2018 – Aug. 2018*
- Overhauled simulation configuration to enable full launch-to-land simulations and reduce configuration edit time by 70%
- Automated updating over 500 legacy configurations to interface with new structure while cleaning out deprecated sims
- Provided Python scripts to generate post-simulation statistics that were used to validate crew dragon for flight with NASA

Vehicle Engineering Intern – Crew Dragon Test Equipment — *Mar. 2018 – Jun. 2018*
- 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 automatically isolates high-pressure systems to reduce danger during an accident

Engineering Computations Course — Irvine, CA
Teaching Assistant — *Sep. 2017 – Dec. 2019*
- Involved in revising assignments, proctoring exams, writing exams, and conducting biweekly office hours for 3 terms
- Provided satisfactory teaching resources to over 900 students with an average overall evaluation of 3.81/4.0

HyperXite - HyperLoop Competition Team — Irvine, CA
Engineering Lead – Systems, Software, & Simulation — *May. 2018 – Mar. 2020*
- Managed high-level vehicle design, on-vehicle software, and development of multiple high-fidelity simulations
- Corresponded with SpaceX engineers to ensure compliance/safety in critical elements of the high-level vehicle design

UC Irvine Biorobotics Lab — Irvine, CA
Researcher – Controls Software — *May. 2018 - Sep. 2018*
- Implemented admittance & impedance control using SimuLink realtime for Duchenne muscular dystrophy rehabilitation

FIRST Robotics Team 3476 — Irvine, CA
Technical Mentor — *Jun. 2017 - Mar. 2020*
- Coached 20+ robotics students through computer vision, controls, and mechanical design on a world-class robot

JMS Materials Research Group — Irvine, CA
Researcher – Data Analysis — *May. 2017 - Sep. 2017*
- Developed data processing and visualization tools in MATLAB to decrease researchers' time expense and error rates

Projects

Roadway Segmentation: Semantic segmentation on CityScapes using a modified U-Net with transfer learning
Deep Image Colorization: Self-supervised grayscale image colorization using pre-trained and custom feature fusion
Neural Collaborative Filtering: Rating prediction for (user, item) pairs using the NeuMF deep learning model
N-Body Simulator: gravitational simulator using 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 your dream internship
Effective Engineering: Taught over 75 robotics students the general steps to produce effective engineering solutions
Demystifying DP: Presented to over 15 SWEs a simple method for approaching most dynamic programming problems

Skills

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