

ROHAN PATEL

Los Angeles, CA | U.S. Citizen | Interested in Interplanetary Trajectory Design and Maneuver Optimization

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EDUCATION

California State Polytechnic University, Pomona

B.S. Aerospace Engineering | GPA: 3.35 (3.60 Aerospace Engineering Core)

Relevant Coursework: Orbital Mechanics, Space Vehicle Design, Spaceflight Dynamics and Control, Dynamics & Vibrations, Space Environment, Systems Engineering, Project Management

Expected
12/2020

EXPERIENCE

Jet Propulsion Laboratory | Pasadena, California

Mission Design and Navigation (MDNav) Section 392K Intern

- Assisting the MDNav section by helping to develop a new visualization application for maneuver design simulations
- Learning about Europa Clipper's maneuver design and the basics of flight path control with JPL's MONTE LAMBIC

10-12/2019
06/2020-
Present

Cal Poly Pomona | Pomona, California

On Campus Researcher

- Used JPL's Mission Analysis Low Thrust Trajectory Optimizer (MALTO) to learn about low thrust trajectory design
- Wrote a user's guide, tested, and helped implement MALTO into the CPP undergraduate orbital mechanics course

02/2019-
12/2019

AeroVironment | Simi Valley, California

GNC/Aeromechanical Engineering Intern

- Worked on proof of concept navigation algorithms for efficient flight plan generation for areal mapping UAVs
- Involved with concept of operations, multidisciplinary design optimization, and flight performance estimations

06/2019-
08/2019

PROJECT EXPERIENCE

Capstone Project

Researcher | Monte Carlo Tree Search Based Broad Search (MCTS) with Δ VEGA Leveraging

- Implemented and ran validation cases for a MCTS multi-flyby trajectory design tool to find interplanetary sequences
- Included exterior orbit leveraging Δ VEGA trajectories and subsequent deep space maneuver (DSM) Δ V estimations

09/2019-
07/2020

Space Vehicle Design Course (ARO4811L)

Mission Design Lead | Solar Gravitational Lensing Mission Proposal

- Lead the spacecraft mission design process and used MALTO, AGI's Systems Toolkit, and custom MATLAB codes
- Involved in systems engineering and design of a JPL study for solar gravitational lensing telescope mission

09/2019-
05/2020

Undergraduate Missiles Ballistics and Rocketry Association (UMBRA)

Aerodynamics Team Lead | FAR 1030 Competition (1st Place 30,000 ft. group)

- Worked on vehicle design and used Solidworks Flowsim along with high speed aerodynamics to estimate pressures
- Evaluated trajectory and stability, and taught team members how to use a few high powered rocketry programs

09/2018-
06/2019

Liquid Rocket Laboratory (LRL)

Aerodynamics Team Member | Launch Vehicle Team

- Developed 3-DOF flight trajectory simulation, passive stability evaluation, and vehicle performance MATLAB codes
- Generated & integrated Missile DATCOM aerodynamic coefficients to in a look-up table manner for flight simulation

05/2018-
06/2019

Orbital Mechanics Course (ARO309)

Team Lead | Kinetic Impactor Space Mission Design

- Led team to design an asteroid kinetic impactor mission within current launch vehicle energy limitations
- Created an iterative Lambert arc solver (Porkchop plot tool) in MATLAB and used FreeFlyer for data collection

01/2018-
03/2018

PUBLICATIONS

Patel, R & Landau, D & Lam, T 2020 'Solar System Escape Trajectories Using Outer Planetary Gravity Assists', presented at AAS/AIAA *Astrodynamics Specialist Virtual Conference*, Lake Tahoe, 9-14 August.

Yale, B & Patel, R & Cabrera, J & Nakhjiri, N 2020 'Broad Trajectory Searches Using Monte Carlo Tree Search with the Inclusion of Δ VEGA Trajectories', presented at AAS/AIAA *Astrodynamics Specialist Virtual Conference*, Lake Tahoe, 9-14 August.

SKILLS

FAA Private Pilot License with over 130 hours flying Cessna 152 and 172 aircraft.

Languages/Environments: MATLAB, Python, \LaTeX , UNIX

Programs/Toolkits: AGI STK (w/ Astrogator), JPL MALTO, JPL MONTE (learning), NAIF SPICE, NASA GMAT