

ROHAN PATEL

U.S. Citizen | Interested in Space Mission Design, Navigation, and Planning

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EDUCATION

University of Colorado Boulder

8/2021 - Current

M.S. w/ Thesis Aerospace Engineering (Astrodynamics and Satellite Navigation Focus) | GPA: 3.871

Relevant Courses: Interplanetary Mission Design, Adv. Astrodynamics, Optimal Spacecraft Trajectories,
Statistical Estimation of Dynamical Systems, Attitude Dynamics & Non-Linear Control

California State Polytechnic University, Pomona

8/2016 - 12/2020

B.S. Aerospace Engineering | GPA: 3.37 (Aerospace Engineering Core: 3.60)

RELATED EXPERIENCE

NASA Jet Propulsion Laboratory | Pasadena, California

Flight Path Control (392C) Academic Part-Time Intern

10/2022 – Current

Supporting trajectory analysis and flight path control for the Mars Sample Return mission

Continuum-Space | Pasadena, California

Mission Design and Operations Intern

5/2022 – 8/2022

Creating and learning about optimal high fidelity low-thrust transfers using JPL's Mystic software

NASA Jet Propulsion Laboratory | Pasadena, California

Flight Path Control (392C) Intern

5/2021 - 7/2021

Assessed nonlinear navigation techniques and perturbation sensitivity for Europa Lander low-energy trajectories

Mission Design and Navigation System Engineering (392K) Intern

10-12/2019,

Assisted with visualization tools development for Flight Path Control and learned basics of maneuver design

6-11/2020

RELATED ACADEMIC PROJECTS

(* - term papers available at: rohandpatel.com/graduate)

Trajectory Search and Analysis for L1 and L2 Transfers in the Earth-Moon System*

ASEN6060 Advanced Astrodynamics

11/2022 - 12/2022

Searched and categorized transfers; implemented a multiple shooting method in the CR3BP to find trajectories

Mission Concept to Varuna and Solar System Escape via VEEJUGA*

ASEN6008 Interplanetary Mission Design

3/2022 - 5/2022

Developed broad search and optimization tools; modeled trajectory in NASA General Mission Analysis Tool (GMAT)

Optimization of Low-Thrust Trajectories*

ASEN6020 Optimal Spacecraft Trajectories

3/2022 - 5/2022

Implemented the Sims-Flanagan model and assessed behavior to segments, trajectories, and cost functions

Energy Maximizing, Multi-flyby Solar System Escape Trajectories Survey

Independent Research Project

4/2020 - 7/2020

Explored search space for solar system escape sequences with Kuiper-Belt Object flybys from 2030-2060

Multi-flyby Broad Sequence Search Using Monte Carlo Tree Search (MCTS)

Undergraduate Capstone Project

9/2019 - 7/2020

Implemented and ran validation cases for MCTS based sequence search including ΔVEGA orbit leveraging

Solar Gravitational Lensing Mission Proposal

Mission Design Lead | Undergraduate Space Vehicle Design Course

9/2019 - 5/2020

Lead trajectory design and mission planning for a JPL RFP regarding a solar gravitational lensing telescope mission

PUBLICATIONS

(additional publications available at: rohandpatel.com/publications)

Patel, R. & Hernandez, S. 2021 'Comparison of Linear and Nonlinear Navigation Strategies for a Europa Lander Concept', presented at AAS/AIAA Astrodynamics Specialist Virtual Conference, Big Sky, 9-11 August.

SKILLS

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

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

Other: Private Pilot License with 130 hours flying Cessna 152 and 172 aircraft