

Burton Yale, III

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OBJECTIVE

Actively seeking Astrodynamics position where my experience and expertise can fully be utilized, as well as challenge and expand my current knowledge in the field of spacecraft control and navigation.

EDUCATION

Cal Poly Pomona **Pomona, CA** **Sep 2015 – May 2021**
 B.S. Aerospace Engineering (Core GPA: 3.75/4.00 | Overall GPA: 3.71/4.00)
Course Highlights: Spacecraft Flight Dynamics & Controls, Mechanical Vibrations, & Space Vehicle Design

EXPERIENCE

Jet Propulsion Laboratory **Pasadena, CA** **Jan 2021 – Mar 2021**
 Mission Design & Navigation Intern
 Developing broad trajectory search tool for solar sail cubesat, NEAScout, launching as secondary payload on Artemis I. Optimizing for a sequence of lunar flybys that allow the spacecraft to escape the Earth-Moon system at the right time and with the correct hyperbolic escape energy to rendezvous with Near-Earth Asteroids (NEAs).

Cal Poly Pomona **Pomona, CA** **Feb 2019 – May 2021**
 Research Assistant
 Under research grant from NASA Jet Propulsion Laboratory, redesigned user interface and experience for JPL medium-fidelity, low-thrust trajectory optimizer MALTO. Deployed software to 200 undergraduate orbital mechanics course students and to mission designers at JPL. Available to outside universities through technology sharing.

Panasonic Avionics **Lake Forest, CA** **Jun 2019 – Aug 2019**
 Certification Engineering Intern
 Conducted Structural, Environmental, Smoke/Leak, and Cooling tests and identified failures, then generated reports summarizing results and identifying issues. Coordinated with various engineering groups to help evaluate a new set of materials for Line Replacement Units (LRUs) that are compliant with FAA, EASA, and OEM requirements.

PUBLICATIONS

Abdolrahimi, S., Yale, B., Welsher, J., Tzounis, C., Fofrich, J., Cancinos, R., Patel, R., Cabrera, J., Hassel, C. B., Nakhjiri, N., Scott, D., & Johnson, A. (2020). Voyager 3: A Concept Mission to Interstellar Medium, ready for submission to *AIAA Journal of Spacecraft and Rockets*.

Yale, B., Patel, R., Cabrera, J., & Nakhjiri, N. (2020). Broad Trajectory Searches Using Monte Carlo Tree Search with the Inclusion of Δ VEGA Trajectories, proceedings of *2020 Astrodynamics Specialist Conference*. AAS 20-686.

PROJECTS

Broad Trajectory Searches Using Monte Carlo Tree Search (MCTS) **Aug 2019 – Aug 2020**
 For the conference proceedings of *2020 Astrodynamics Specialists Conference*, was the lead author and contributor to broad trajectory search, path finding algorithm. Employing a heuristics-based decision-making search tree, named Monte Carlo Tree Search, to find interplanetary multi-gravity assist trajectories. [Code Repository Link](#)

Voyager III JPL RFP Response – Capstone Spacecraft Design Project **Aug 2019 – May 2020**
 For JPL student design proposal, lead team of 7 students over multiple design reviews with industry professionals and school-year long development. Winning 1st place in design to send a spacecraft with scientific payload to a point outside the solar system at 550 AU to directly view exoplanet surfaces. [Preliminary Design Proposal Link](#)

Attitude Control System Design of a Momentum Bias Satellite **Apr 2020 – May 2020**
 Employed active control methods to orient unstable spacecraft through MATLAB system modeling. Through state and rate sensing, independently controlled yaw, pitch, and roll axes to bring spacecraft within designated guidelines and prevented the passive exponential growth. [Final Report Link](#)

PROFESSIONAL SKILLS

Coding Languages: MATLAB | Python (PyKep, SpiceyPy) | Julia | \LaTeX | Bash | UNIX
Software Experience: MS Office | JPL MALTO | NAIF SPICE | Git | JIRA | SolidWorks | AGILE PLM
Engineering Skills: Software Design | Tool Development | Systems Engineering | Program Management