June 2021

Burton Yale, III

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OBJECTIVE

Actively seeking Astrodynamics and/or Flight Dynamics 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

Master's of Science in Aerospace Engineering — **August 2021 – Current**
The University of Texas at Austin
Emphasis: Orbital Mechanics

Bachelor's of Science in Aerospace Engineering — **Sep 2015 – May 2021**
California State Polytechnic University, Pomona
Graduated Magna Cum Laude with a GPA of 3.7/4.0

EXPERIENCE

Jet Propulsion Laboratory — **Pasadena, CA** — **Jan 2021 – May 2021**
Mission Design & Navigation Intern

- Enhanced broad search tool for solar sail cubesat, NEAScout, launching as secondary payload on Artemis I
- Optimized 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)
- Created database of mutli-revolution orbits and incorporated transfers into search tool for increased versitility

Cal Poly Pomona — **Pomona, CA** — **Feb 2019 – May 2021**
Research Assistant

- Adapted JPLs Mission Analysis Low Thrust Optimizer software for new JPL employees & undergraduates
- Enhanced current capabilities of base software through intuitive MATLAB App Designer user interfaces

Panasonic Avionics — **Lake Forest, CA** — **Jun 2019 – Aug 2019**
Certification Engineering Intern

- Conducted Structural, Environmental, Smoke/Leak, and Cooling tests and identified failures
- Generated Flammability, Structural, Environmental, Smoke/Leak, and Cooling reports

PUBLICATIONS

Yale, B., & Lantoine, G. (2021). Multi-Revolution Extension of Solar-Perturbed Moon-To-Moon Transfer Families, submitted to *2021 Astrodynamics Specialist Conference*. AAS 21-581.

Yale, B., Nakhjiri, N., Patel, R., & Lam, T. (2021). Raising the Bar: Adapting MALTO For Use In Undergraduate Classrooms, in progress.

Abdolrahimi, S., **Yale, B.**, Welsher, J., Tzounis, C., Fofrich, J., Patel, R., Cabrera, J., Nakhjiri, N., Scott, D., & Johnson, A. (2020). Voyager 3: A Concept Mission to Interstellar Medium, submitted 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 ΔVEGA Trajectories, proceedings of *2020 Astrodynamics Specialist Conference*. AAS 20-686.

PROJECTS

Broad Trajectory Searches Using Monte Carlo Tree Search (MCTS) — **Aug 2019 – Aug 2020**

- Created tool to find multi-planetary sequence trajectories to the outer planets using Monte Carlo Tree Search
- Published methods and findings at the *2020 AAS/AIAA Astrodynamics Specialists Conference* (AAS 20-686)
- Results used for initial guesses in higher fidelity optimizers, like JPL MALTO, to reduce convergence time
- Source code for program and findings available through GitHub (Link to repository)

Voyager III JPL RFP Response – Capstone Spacecraft Design Project — **Aug 2019 – May 2020**

- Managed mission concept proposal team of 6 students & assigned tasks via JIRA Agile project
- Request For Proposal from science team at JPL to send telescoping platform to 550 AU and image exoplanets
- Designed spacecraft through Preliminary Design and presented results to industry at NGC, LMC, & JPL
- Evaluated space environment and engineered thermal & radiation sub-systems to protect sensitive elements
- Designed trajectory for high-risk competing architecture by converging in JPL MALTO optimizer

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 | Parallel Computing | Systems Engineering