STEPHEN JENKINS

SPACECRAFT NAVIGATION ENGINEER

CONTACT

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Highlands Ranch, CO

EDUCATION

M.S. Applied Mathematics
Johns Hopkins University
Baltimore, MD
August 2018

B.E. Computer Engineering
Dartmouth College
Hanover, NH
June 2015

B.A. Mathematics
Colby College
Waterville, ME
May 2014

SKILLS

MATLAB/Simulink
Python
C/C++
GitLab/Atlassian Tools/CI/CD
NAIF SPICE
Image Processing
GNC Algorithms
Autonomous systems

NOTABLE AWARDS

- AIAA Young Professionals Top Presentation Award
- Two Special Achievement Awards for exceptional performance

SUMMARY

Proven record of designing, implementing, and testing robust autonomous onboard spacecraft navigation systems. Experience leading small teams using modern software development processes to efficiently produce high-quality, tested, software deliveries.

EXPERIENCE

JHU Applied Physics Laboratory **July 2015-present**
Space Exploration Sector Laurel, MD
Senior Professional Staff

- **Electro-Optical Terrain Sensing Function Lead** of the Mobility subsystem for NASA's Dragonfly mission to Titan
  - Led a team of four through conceptual development, analysis, implementation, and early testing of an image processing algorithm to enable autonomous onboard optical navigation for a rotorcraft
  - Leveraged agile and continuous integration approaches to manage the software development and release processes of several code deliveries to flight software
  - Collaborated across GN&C, flight software, and firmware teams to design a software/firmware distributed algorithm that optimizes resource utilization and algorithmic flexibility

- **Navigation Engineer** for the Small-body Maneuvering Autonomous Real-Time Navigation subsystem of NASA's Double Asteroid Redirection Test (DART) mission that successfully guided the spacecraft to impact the asteroid Dimorphos in Sept. 2022
  - Designed and implemented the optical targeting algorithm to autonomously discriminate Dimorphos from the primary asteroid Didymos in imagery during the terminal phase of DART's approach to Dimorphos

- **Principle Investigator** and team member for Autonomous Station Keeping effort to design onboard guidance and navigation algorithms for station-keeping in chaotic dynamical environments
  - Architected a modular and extensible software framework to analyze mission concepts that require onboard navigation and trajectory planning
  - Maintain software and implement user-requested features for new use-cases of analysis software

SELECTED PUBLICATIONS

- Isaac R. Witte, Steve N. Jenkins, Justin R. Thomas, Samuel E. Bibelhauser, Nishant L. Mehta. "Preliminary Flight Testing of Dragonfly's Electro-optical Terrain Sensing Function," 3rd Space Imaging Workshop, Atlanta, Georgia. October 2022.
- Isaac R. Witte, Dmitriy L. Bekker, Michelle H. Chen, Thomas B. Criss, Steve N. Jenkins, Nishant L. Mehta, Carolyn A. Sawyer, Jason A. Stipes and Justin R. Thomas. "No GPS? No Problem! Exploring the Dunes of Titan with Dragonfly Using Visual Odometry," AIAA 2019-1177. AIAA Scitech 2019 Forum. January 2019.
- Chen, M., et al. "Small--Body Maneuvering Autonomous Real--Time Navigation (SMART Nav): Guiding A Spacecraft to Didymos for Nasa's Double Asteroid Redirection Test (DART)." *Advances in the Astronautical Sciences* 164 (2018): 347-359.