Samantha Ramsey

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EDUCATION

UNIVERSITY OF TENNESSEE, KNOXVILLE
B.S. in Aerospace Engineering
Minor: English Literature
Expected Graduation: May 2022
GPA: 3.93/4.00

TECHNICAL SKILLS

Programming Languages
Python | MATLAB | C/C++

Tools
Git | Bash | LaTeX

Flight Software
Copernicus
Program to Optimize Simulated Trajectories (POST)
General Mission Analysis Tool (GMAT)
Mission Analysis Environment (MAnE)
Systems Took Kit (STK)
Evolutionary Mission Trajectory Generator (EMTG)

Other
Numerical Methods and Analysis
Technical Writing
Microsoft Office Suite
Windows/Mac/Linux OS

CERTIFICATIONS

Systems Took Kit:
Level I: STK Fundamentals, Level II: STK Master

NVIDIA:
GPU Accelerated Data Science with RAPIDS, GPU Accelerated Computing with CUDA

ACADEMIC AWARDS

Tickle College of Engineering
Engineering Leadership Scholarship
Deans List all semesters

American Institute of Aeronautics and Astronautics
2019 Diversity Scholar

Vanderbilt Hackathon
VandyHacks IV: Code a Masterpiece
Winner: "A Code of Art"

ENGINEERING EXPERIENCE

JACOBS SPACE EXPLORATION GROUP | SLS Guidance Intern
May 2020 - August 2020 | Marshall Space Flight Center

- Furthered the development of one of the closed-loop guidance algorithms used for Space Launch Systems by updating input files and source code for use in current and future program analysis cycles.
- Developed Python scripts to automate Monte Carlo analysis procedures.
- Derived an analytical expression for insertion flight path angle for SLS Block 1B class of vehicle which resulted in an increased nominal insertion mass for ARTEMIS III+ mission architectures.

BEVILACQUA RESEARCH CORPORATION | Trajectory Intern
May 2019 – August 2019 | Marshall Space Flight Center

- Participated in astrodynamics classes on topics including orbital mechanics, mission planning techniques, trajectory optimization, and programming.
- Studied celestial body motion to design analytic models which predict initial conditions for Copernicus, one of NASA's in-space trajectory simulation tools, to determine potential launch windows based on synodic periods.

RESEARCH

UTK | Astrodynamics Research Assistant
August 2019 – Present | Aerospace Engineering Department

- Develop and apply analytical and numerical techniques to solve astrodynamics problems.
- Design a mission to the Saturn system which utilizes an aerogravity assist at Titan to capture into an Enceladus-crossing orbit.
- Create a mathematical model of the Saturn system to optimize the final orbit based on Titan intercept position and Enceladus timing constraints.

LEADERSHIP

Engineering Technical Lead
August 2020 – Present | Tickle College of Engineering

- Provide guidance and technical assistance to all four of the University of Tennessee's senior design groups focusing on interplanetary mission design.

Student Advisory Council to the Provost
October 2020 – Present | University of Tennessee, Knoxville

- Work with students, faculty, staff, and administrators from units across campus to provide feedback on programs, policies, and initiatives designed to enhance the student academic experience.

Engineering Ambassador
August 2019 – Present | Tickle College of Engineering

- Serve as the face of the university to recruit prospective students and represent the college to Alumni.

PRESENTATIONS

[1] S. Ramsey and J. E. Lyne. Titan aerogravity assist for orbital capture into saturn system. *International Planetary Probe Workshop*, 2020.

[2] A. Warren, A. Kennedy, J. Stophel, S. Wellence, S. Ramsey, and J. E. Lyne. Multiple observation opportunities for trans-neptunian objects part 7. *Astrodynamics Specialist Conference*, 2021.