Scott Nguyen

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EDUCATION

Master of Science in Electrical Engineering |Space Systems Engineering **Spring 2026**
University of New Mexico GPA: 4.00/4.00
Master of Science in Aerospace Engineering **Fall 2024**
University of Illinois Urbana-Champaign
Bachelor of Science in Aerospace Engineering **Spring 2022**
Iowa State University

RELEVANT COURSEWORK

Orbital Mechanics I–III | Spacecraft Attitude Dynamics and Control | Space Situational Awareness

SKILLS

Programming Languages: MATLAB, Python, C/C++
Frameworks / Libraries / Tools: NumPy, SciPy, Matplotlib, Astropy, Poliastro, bpy, git
Applications: Simulink, Blender

WORK EXPERIENCE

Guidance, Navigation & Controls Engineer Intern **May 2025 – Present**
Blue Canyon Technologies

- Verified the functionality and polarity of IMU, Nano Star Tracker, Reaction Wheels, Torque Rods, and Sun Sensors; validated reaction wheel and control moment gyro test data against performance specs
- Performed regression analysis on two-axis Solar Array Drive Assembly (SADA) momentum management and conducted command interface testing to ensure accurate control and reliability
- Authored automated test scripts and mapped SADA telemetry channels to COSMOS to streamline testing, validation, and real-time monitoring

Guidance, Navigation & Controls Engineer Intern **January 2025 – April 2025**
Blue Origin

- Implemented a novel, robust control approach by integrating Active Disturbance Rejection Control (ADRC) and Sliding Mode Control (SMC) in Simulink for highly nonlinear MIMO BE-7 engine dynamics.
- Simulated disturbances were effectively rejected, improving accuracy and robustness in setpoint tracking
- C code for S-function integration of flight software with Simulink models for testing and verification
- Compiled findings into a technical report and presented control strategies, simulations, and integration insights

Guidance, Navigation & Controls Engineer Intern **May 2024 – August 2024**
Varda Space Industries

- Conducted trade studies to optimize gravity models for mission requirements and select the best filter (Extended Kalman Filter (EKF) vs. Unscented Kalman Filter (UKF)) for nonlinear dynamics
- Created Monte Carlo simulations to perform flight safety analysis and develop reentry criteria for capsule reentry
- Developed a UKF for state estimation, optimizing ground station data timing to minimize residuals and enable precise delta-v planning
- Validated GPS error using hardware-in-the-loop testing with Spirent simulation
- Implemented unit testing for the code base and introduced CI/CD pipelines using Bamboo

Guidance, Navigation & Controls Engineer Intern **May 2023 – August 2023**
Space Dynamics Laboratory

- Implemented a UKF with range iteration and least squares orbit determination methods using optical navigation
- Simulated high-fidelity dynamic models with J2 perturbations, third-body dynamics, and solar radiation pressure
- Performed Monte Carlo analysis on relative orbits to identify challenging scenarios and refine the algorithm
- Programmed and developed unit tests for Lambert Solver to be utilized with Initial Orbit Determination (IOD)

RESEARCH PROJECTS

Delta-V Minimization from Geostationary Orbit to Mars

- Applied trajectory optimization techniques to minimize delta-v for an Earth-to-Mars transfer orbit, enhancing fuel efficiency
- Generated pork-chop plots using Lambert solutions and cross-validated optimizer results with the plot's global and local minimum regions to ensure consistency
- Utilized Blender's Python API to visualize the optimized trajectory and animate planetary motion