Nathan Justus, Robotics Ph.D.

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Education

2020 – 2024 **Ph.D., Robotics - Oregon State University**, Corvallis OR
Laboratory for Robotics and Applied Mechanics
Thesis Title: *The Geometry of Passive and Constrained Locomotion.*

2018 – 2020 **M.Sc., Robotics - Oregon State University**, Corvallis OR
Laboratory for Robotics and Applied Mechanics
Thesis Title: *Validation of a Novel Stereo Vibrometry Technique for Spiderweb Signal Analysis*

2012 – 2016 **B.Sc., Aerospace Engineering - University of Oklahoma**, Norman OK

Work History

2024 – 2025 **Embedded Algorithms Engineer - Rhoman Aerospace**, Los Angeles CA (remote)
- Designed embedded motion-control systems driven by a learning-based stack
- Deployed YOLO-based DNNs to NVIDIA Jetson platforms using CUDA acceleration
- Achieved real-time throughput for fusion of GNSS, odometric, and visual data
- Optimized real-time autonomy systems using both experimental test and simulated data

2018 – 2024 **Ph.D. Research Assistant - Oregon State University**, Corvallis OR
Laboratory for Robotics and Applied Mechanics
- Developed real-time software and motion controls for dynamic embedded platforms
- Implemented computer vision techniques to study vibration signals in spiderwebs

2016 – 2018 **ISS Flight Controller - NASA - Johnson Space Center**, Houston TX
Mission Control for the International Space Station
Communications RF On-board Networks Utilization Specialist (CRONUS)
- Developed automated detection and diagnostic systems for real-time ISS operations
- Executed real-time decision making to recover from mission-critical system failures

2014 – 2015 **Aerospace Engineer Intern - Tinker Air Force Base**, Oklahoma City OK
Maintenance Engineering for the Pratt & Whitney F100 Jet Engine
- Automated engine performance analysis for the F15 and F16 supersonic fighter jets

Projects

Rover Founded and was chief engineer for a team that won a NASA rover design challenge

SCRAM Led motion optimization for a nationwide collaboration studying dynamic mobile robots

Spiderharp Deployed and maintained a large musical robotic spiderweb that is played like a harp

Key Skills

Software NVIDIA CUDA, Jetson platforms, Linux, C++, ROS, ROS2, Python, MatLab, Perl

Automation Software design, sensor fusion, test-driven development, embedded systems, dynamic simulation, model identification, kinematics and dynamics, control systems

Mathematics Geometric mechanics, differential geometry, stochastic models, nonlinear controls

Technologies PyTorch, TensorFlow, OpenCV, RTOS, Git