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Tobiah Bower

GNC Engineer / Graduate Researcher

Portfolio: tobiahbower
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EDUCATION

Master of Science in Electrical Engineering, University of Central Florida, GPA 3.83 May 2026
Bachelor of Science in Electrical Engineering, University of Central Florida, GPA 3.89 May 2025
3x IEEE Signal Processing Society Student Scholarship 2023 — 2025
Courses: Deep Learning, Object Oriented Programming, Computer Communication Networks, Guidance Navigation and Controls, Estimation of Dynamical Systems, Digital Control, Image Processing, Applied Randomness, Signal Analysis, Analog Communication

WORK EXPERIENCE

GNC Engineer Associate / TacIRST Algorithms July 2025 — Present
Lockheed Martin Missiles and Fire Control Orlando, FL

- Tuned operating point for the sequential probability ratio test feature estimator for HYDRA flight test inertial tracker build
- Contributed threat signature, performance statistics, and other analysis products to Milestone C Report
- Diversified analysis infrastructure with support for parallel processing on Cluster and end-to-end simulation analysis in SPADE
- Deployed executable SPADE tool (Software for Performance Analysis and Design of Experiments) with Git pipeline
- Utilized FlightRadar24 API to extract airliner traffic through Python scripts for flight test analysis
- Pioneered inertial sensor POV coastlines and horizon line for SPADE video player and demoed to Systems Engineering AATC

Image Processing CWEP / Advanced Threat Warning Systems Jan 2025 — Apr 2025
Lockheed Martin Missiles and Fire Control Orlando, FL

- Created distortion visualizer tool using radial basis function class and introduced dynamic interfacing to SPADE
- Developed handtruth to chip conversion MATLAB class and prototyped SPADE data input translator and module broker
- Supported ADAS, TacAIR, Combat Archer flight test data analysis efforts

Systems Engineering CWEP / Multi-Domain Missile Systems May 2022 — December 2024
Lockheed Martin Missiles and Fire Control Orlando, FL

- Enabled forward compatibility for JAGM mmWave terminal doppler imaging MATLAB tool
- Compiled JAGM IFS (integrated flight simulation) SDZ (surface danger zone) results for Navy customer
- Generated Hellfire QALVT analysis suite for multiple events: aero model validation, TM dropouts, modal analysis, Nav fusion
- Ran preflight predictions for QALVT using IFS monte carlo parameters for mass properties, wind, thrust misalignment
- Developed novel MATLAB telemetry analysis tool for Spike NLOS simulation

PROJECTS

Project Lead/ FORWARD (Feedback Oriented Routing & Walker Assistance w Responsive Direction) (repo) Aug 2024 — May 2025
Senior Design Project - (Computer Vision with Sensor Fusion) Orlando, FL

- Designed active obstacle detection system for 2π steradian coverage using ultrasonic and LiDAR sensors
- Designed artificial potential field obstacle avoidance algorithm using YOLO detections and inertial measurement datastream
- Completed 4-layer Main controller PCB and 2-layer Voltage Regulator PCB
- Assembled chassis, enclosure, sensor mounting, haptic feedback system, and wire sleeving

RESEARCH

Speech Phase Reconstruction and Enhancement (SPREN) / Undergraduate Researcher Dec 2024 — Present
Autonomous and Intelligent Systems Laboratory (Multi-modal perception) Orlando, FL

- Developed speech denoising algorithm using Kalman Filter based on autoregressive linear predictive coefficients.
- Compared performance of Griffin-Lim phase recovery (GLA) to neural network phase prediction approach (NSPP)
- Conducted hybrid series algorithm filter trade study of process noise with respect to speech quality, intelligibility and SNR scores.

ACTIVITIES

UCF Student Scholar Symposium, Speech Phase Reconstruction, Poster Presenter (Post) Spring 2025
UCF Student Scholar Symposium, Super State Racer, Poster Presenter (Post) Spring 2023
IEEE UCF: Digital Audio Workshops, Creator/Facilitator (Repository) Fall 2023

SKILLS

Programming MATLAB, Bash, Python, C/C++, SQL, HTML, CSS, Java
Tools PostgreSQL, Podman, SLURM, QMon, LTspice, Beyond Compare, KiCAD, Keysight ADS, AWS
Programs JIRA, Agile, Git/GitLab, LibreOffice, Microsoft Office, Hugging Face