Vera Fodor

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Scan for portfolio

Education

University of Central Florida **Aug 2023 – May 2028**
Bachelor of Science in Electrical Engineering (RF & Microwave Track) | GPA: 3.6 *Burnett Honors College*

Technical Skills

RF & Microwave: Antenna design, mmWave/RF PCB design, impedance matching, full-wave EM simulation, SDR/DSP
Test & Measurement: VNA, spectrum analyzer, oscilloscope, hardware bring-up/debug, environmental testing
Hardware & Firmware: Multilayer PCBs, power electronics, MIL-SPEC harnessing, C/C++, low-power firmware
Software: Siemens Xpedition, Altium, KiCad, ANSYS HFSS, SolidWorks, Siemens NX, MATLAB, Python, Git
Certifications: FCC Amateur Radio General Class (KM4VXF), FAA Student Pilot Certificate

Work Experience

SpaceX | Starship RF Engineering Intern **Jan 2026 – Aug 2026**
Starship HLS flight hardware – two consecutive terms; invited to extend through summer *Hawthorne, CA*

- Led schematic design and Xpedition board layout for Ka-band RF signal-chain PCBs supporting ranging and telemetry systems, optimizing performance through full-wave EM simulation.
- Performed bring-up and debug of RF and power electronics, including power and thermal management circuitry.
- Designed, simulated, and machined custom RF structures, iterating from EM model to fabricated hardware.
- Designed and built flight-like harnesses and characterized signal integrity under vibration in environmental qualification.

MXOD Hypersonic Flight Experiment | Research Assistant **May 2024 – Jan 2026**
UCF Propulsion and Energy Research Lab (PERL)

- Led design and development of flight electronics including high-rate DAQ systems and multilayer PCBs for power regulation and signal conditioning across 85+ high-sensitivity sensor channels.
- Presented technical reviews (DDRs, MRRs) to university and U.S. Air Force stakeholders; co-authored AIAA SciTech 2026 paper on the flight feed system and electronics architecture.

Publications

J. Koller, A. Shack, A. R. Kotler, S. Smith, Y. Fuentes, A. Siddiqi, **R. Fodor**, G. Gonzalez, J. D. Sprunger, and K. A. Ahmed, "MXOD Flight 1: Feed System and Electronics Architecture," *AIAA SciTech Forum*, 2026. doi:10.2514/6.2026-0346

Leadership / Extracurricular

UCF Knights Experimental Rocketry **Jan 2022 – Aug 2024**
Director of Electronic Systems, Executive Board | Joined as a high school junior *May 2023 – May 2024*

- Managed an $80k annual budget and 700+ members across 8 technical projects; secured industry sponsorships.
- Led avionics and telemetry design and integration for Florida's first collegiate liquid bi-propellant rocket and an ion engine; directed PDR/CDR technical reviews.
- Designed multilayer PCB avionics systems for 50+ sensor channels and a vehicle-wide CAN network.
- Built a digital video telemetry system for live high-altitude feeds (>10,000 ft) using modified Wi-Fi hardware.

Projects

Solar-Powered High-Altitude Picoballoon Telemetry System | *Personal Project* **2019 – Present**

- Launched 6 solar-powered picoballoons to 40,000–50,000 ft; longest flight lasted 121 days and circumnavigated the globe 11 times, tracked via the worldwide WSPR amateur radio network.
- Designed a <6 g, 4-layer impedance-controlled tracker PCB integrating GPS, an ATtiny MCU, and a 10 mW Si5351-based HF transmitter with differential dipole feed and harmonic filtering.
- Wrote a compact WSPR encoding library from scratch for strict MCU memory limits; engineered solar power management with hysteretic boost enable to eliminate brown-outs at sunrise.
- Developing next revision with image downlink via a custom SDR-based 9600 baud GFSK decoder.

433 MHz Blade Antenna for Supersonic Rockets | *Knights Experimental Rocketry* **Jan 2024 – Apr 2024**

- Designed an external inverted-F blade antenna in ANSYS HFSS for telemetry from a Mach 2 carbon-fiber rocket, iterating geometry against S_{11} return loss and far-field gain.
- Redesigned with UCF machinists into a manufacturable three-piece aluminum/Delrin assembly with a sliding dielectric for feed-point tuning; measured match on a VNA closely agreed with simulation.