Brynn Mara Lawson

(904) 295-9721 | mara@noise.observer | github.com/1200bps

Education

Pasco-Hernando State College — New Port Richey, FL
Associate in Arts — *Aug. 2016 – May 2018*

Prior Employment

RF Test Technician — July 2024 – July 2025
Antenna Research Associates — *Laurel, MD*

- Production/in-process QC of spiral antenna pattern, axial ratio, skew, and AoA from 0.5-40 GHz
- Wrote tools in Python to characterize per-antenna phase S11 response and recommend matched antenna sets for assembly into interferometer arrays
- Planned and implemented process improvements for antenna/array anechoic chamber testing, including common mode suppression and characterization of an external interference source
- Performed IR&D test design, supporting product development in multiple defense application domains

Antenna Technician — Feb. 2024 – July 2024
Octane Wireless — *Hanover, MD*

- Soldering and mechanical assembly of omnidirectional and directional stub, whip, wearable, and manpack antennas according to engineering drawings in an ISO-9001 environment
- Performed QC/QA testing on radiator assemblies, matching/power divider circuits, and completed antennas from 2 MHz – 10 GHz
- Supported IR&D testing towards development of a novel omnidirectional slot antenna array

Projects & Experience

Hybrid Low-IF SDR HF Receiver | *KiCAD, LtSpice, C/C++ on ARM* — 2022 – 2023

- LO synthesis for 5-30 MHz achieved with Si5351a DDS and ADE-1+ MMIC mixers
- Hybrid design incorporates both traditional SSB demodulation at 11.7 MHz and a second IF at 455 kHz, IQ sampled at 48 kHz and demodulated by DSP techniques

L-Band Helix Array & Inmarsat Data Processor | *HFSS, Python, SQL* — May 2025 – Present

- 1x3 array with tapered aperture power distribution for reduced sidelobe noise power, designed by reference to Kraus' *Antennas*
- Processing of downlinked Inmarsat Aero ACARS messages after demodulation/decoding achieved by a bespoke database schema, designed in collaboration with a friend
- Plans in place to implement pub/sub functionality via MQTT, enabling easy access to downlinked messages by applications further in the value chain

Wide-Area LoRa Network Enhancements & Expansion | *QGIS, C++ on ESP32* — Oct. – Nov. 2025

- Collaborated with NoVA Mesh, a large community of microwave networking enthusiasts
- Selected sites for repeater "supernode" placement to meet user requirements, using remote sensing data (LiDAR) and viewshed/link budget simulation
- Sites selected brought mesh network coverage to downtown Fairfax, VA and improved link reliability in areas surrounding Frederick, MD
- Trialled in-house modifications to the Meshtastic firmware to improve routing performance in a geographically diverse region with inhomogeneous node placement/asymmetric routes

FCC-Licensed Amateur Radio Operator | *Extra-class, callsign* NN7NB — Feb. 2014 – Present

Skillset

Languages: Embedded C/C++, Python, SQL, bash, HTML/CSS
Platforms: Atmel AVR, ARM Cortex-M, ESP32, Linux server
Development Tools: Git, Docker, PlatformIO, Vim, VS Code
Engineering Tools: KiCAD, OpenSCAD, QGIS, LtSpice, NEC 4, HFSS