ADRIAN DARLINGTON

adrian.darlington@columbia.edu | +1 (207) 713-2907
adrian-darlington.com | linkedin.com/in/a-darlington

RF & Mixed-Signal Hardware | FPGA & Embedded Systems | U.S. Citizen

EDUCATION

Columbia University Expected May 2028
Bachelor of Science in Electrical Engineering
C.P. Davis Scholar | Dean's List: Spring 2025, Spring 2026

TECHNICAL SKILLS

Hardware: KiCad, schematic capture, RF/mixed-signal PCB layout, controlled impedance, LVDS routing, DFM
Digital & Embedded: Verilog, SystemVerilog, VHDL, C/C++, FPGA logic, nRF52840, ESP32, STM32
Interfaces & Analysis: SPI, I2C, UART, BLE, RGMII/Ethernet, Python, GNU Radio, signal processing

ENGINEERING PROJECTS

RADIOLAND | Wideband Software-Defined Radio (SDR)

- Independently architected and laid out a 10 cm x 10 cm, four-layer RF receiver PCB in KiCad, targeting 600 MHz-6 GHz operation. Prototype in manufacturing; initial bring-up planned for October 2026.
- Designed the RF/mixed-signal chain with input protection, LNA, I/Q demodulator, PLL/VCO local oscillator, anti-alias filtering, and dual-channel 12-bit, 250 MSPS ADC for an Artix-7 FPGA interface.
- Routed controlled-impedance RF traces, differential analog paths, time-delay-matched LVDS, high-frequency clocks, and RGMII/Gigabit Ethernet; designed the multi-rail power tree and sequencing.
- Coordinated PCB fabrication and assembly: documented impedance requirements, evaluated component substitutions, reviewed CAM changes, and resolved clearance issues before production.

Plant Sensor | Mixed-Signal Sensing & Embedded Telemetry

- Designed a custom nRF52840 PCB combining 125 kHz capacitive soil-moisture sensing, 5 kHz bipolar conductance measurement, and temperature, humidity, and light sensors.
- Built sensor firmware and BLE communication to an ESP32 gateway with dual OLED displays and HTTPS telemetry, connecting custom hardware to a live monitoring website.

FPGA Music Sequencer | VHDL

- Implemented and demonstrated a 65-event melody sequencer with programmable clock dividers and a seven-segment display; verified note selection and tone timing with a VHDL testbench.

EXPERIENCE

Avangrid Jun 2026-Present
Distribution Planning Assistant (part-time) Aug 2026-Present
Distribution Planning Intern Jun-Aug 2026

- Analyzed capacity and reliability for 4 substations serving 20,000+ customers; helped develop 12 upgrade alternatives supporting $30M+ in investment analysis, all advancing to further engineering study.
- Developed a harmonic-regression workflow that reduced personal SCADA data-cleaning time by approximately 30%; reconstructed underlying demand by unmasking distributed generation from load data.
- Retained part-time based on performance; presented recommendations to engineering and investment-review groups.

ShredElectric | Microgrid Development Intern Jun-Aug 2025

- Integrated a 48 V, 300 Ah electric catamaran power system with approximately 3 kW propulsion, VESC motor control, battery charging, protection, emergency stop, and 400 W MPPT solar charging.
- Independently diagnosed and restored a customer telemetry/dashboard system in approximately 3 hours; performed field electrical repairs on marine equipment.

Ocean Renewable Power Company | Electrical Engineering Intern Jun-Aug 2023

- Contributed to a Python statistical model of tides and tidal-energy production; designed schematics for a PLC-based hardware-in-the-loop system representing a 14 kW RivGen generator.