Edward Wawrzynek

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Education

Bachelor of Science in Electrical Engineering **August 2022 - May 2026 (expected)**
Bachelor of Science in Applied Mathematics
Minor in Physics
University of Colorado Boulder *Boulder, CO*

GPA: 4.0/4.0, Engineering Honors Program

Technical Skills

I am interested in applied electromagnetics, RF systems, and analog circuit design in general. I have mathematical interest in numerical methods for PDEs and chaotic dynamics.

Skills: Circuit design, simulation (ADS, LTSpice), EM simulation (FEKO), PCB design (Altium).
Languages: C/C++, MATLAB, Python, Verilog, Rust, HTML/CSS/JS.

Work Experience

Research Assistant, High Speed Digital Engineering Group **June 2023 – Present**
CU Boulder Electrical, Computer & Energy Engineering *Boulder, CO*

- Investigated techniques for designing high bandwidth interconnects with silver nanoparticle (AgNP) conductive inks.
- Fabricated, measured, and modelled microstrip test structures from AgNP inks.
- Developed custom instrumentation (circuit, PCB, and software) for pulsed I-V measurements of ink structures, demonstrating I-V under isothermal and heated conditions.

Learning Assistant **August 2023 – December 2023**
CU Boulder Electrical, Computer & Energy Engineering *Boulder, CO*

- Lectured introductory electronics, helped students design and build freshman engineering projects.

Boulder County Parks & Open Space **June 2019 – August 2019**
Parks Employee *Boulder, CO*

- Performed trail maintenance, noxious weed management, and conservation work across Boulder County.

Technical Experience

Wave Visualization App **May 2022 - Present**
https://www.github.com/edwardwawrzynek/waves_sim

- Created an interactive application to visualize solutions to the wave and heat equations.
- Wrote a finite difference time domain (FDTD) solver for the equations. Developed the solver for GPU acceleration with OpenGL, allowing for realtime visualization of solutions.
- Developed a GUI that allows for graphical construction of boundary and initial conditions. Designed examples demonstrating conditions of phased array antennas, doppler effect, transmission across impedance mismatches, beat frequencies, cavity resonators, and other wave phenomena.

Fairview High School Web Team **August 2018 - May 2022**

- Led a group of eight students that built and maintained a school website programmed from scratch in Ruby on Rails, receiving over 10,000 weekly page views from students, parents, and staff. Taught the basics of web development, Ruby, and version control to students.
- Developed a rich content creation system that allowed school staff to easily create complex pages and layouts. Staff used the tool to develop an extensive website with nearly 200 pages.

Relevant Coursework

- EM Fields, Waves & Transmission
- Electronics for Wireless Systems
- Microelectronics
- Circuits & Linear Systems
- Chaos in Dynamical Systems
- Matrix Methods & Applications

Other

Rising Star Award, CU Boulder Electrical, Computer & Energy Engineering **May 2023**
Recognizes a single first-year student for outstanding engagement with course work, research, and the department.

Amateur Radio License (KF0MNX), General Class