Kobe Prior

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Education

Colorado School of Mines **May 2027**
Master of Science in Electrical Engineering, Focus - Antennas and Communication GPA: 4.0

Colorado School of Mines **May 2026**
Bachelor of Science in Electrical Engineering GPA: 4.0

- Oustanding Graduating Senior, 6x Dean's List Honors, Mines Undergraduate Research Fellow

Skills

Languages: Python, C++, Embedded C, MATLAB, Verilog, Arduino, HTML, LaTeX
Software: ADS, Altium, HFSS, Vim, Git, GNU Radio, Microsoft Tools
Testing Equipment: Vector Network Analyzer, Oscilloscope, Digital Multimeter, Spectrum Analyzer, Function Generator
Hardware: Arduino, SDR, LPKF, FPGA, 3D Printer

Work Experience

Rincon Research **May 2025 – July 2025**
DSP Intern Centennial, CO
Developed physics simulation and small scale hardware realization of bent-pipe communication system

- Embedded a CesiumJS-based orbit visualization tool into graphical user interface that rendered satellite trajectories, identifying line-of-sight paths for ideal links between ground stations and the satellites
- Formulated a dynamic channel model informed by satellite position and trajectory data to simulate time delay, path loss, and Doppler shift
- Controlled signal generator and 2 software-defined radios in a small-scale hardware demonstration by issuing asynchronous ZMQ and SSH commands from a graphical user interface

Colorado School of Mines **August 2022 – Present**
Undergraduate Researcher Golden, CO

- Characterized interactions between OAM beams and conical scatterers through full-wave FDTD simulations
- Built a Raspberry Pi-based path loss and polarization demo module using full-duplex SDR controlled by GNU Radio

Colorado School of Mines **August 2023 – Present**
Resident Advisor Golden, CO

- Mentored and supported 30+ residents by fostering community, addressing concerns, and collaborating with other RAs

Colorado School of Mines **January 2026 – Present**
Introduction to Antennas Teaching Assistant Golden, CO

- Assisted students in characterizing their antennas performance, designed homeworks to be highly applicable to industry, provided actionable feedback on student's assignments, and led hands on demonstrations electromagnetic phenomena

Projects

Low-cost, Software-defined, 16-port, Phase Shifting Network **August 2025 – Present**
Phased Arrays and Scattering Applications Colorado School of Mines

- Implemented an intuitive Python-based graphical user interface allowing users to manually set the phase of each port or select from default beam scanning configurations
- Programmed STM32 Microcontroller to manage serial communication with the custom phase shifting network, embedding device addresses per datasheet specifications
- Designed hierarchical schematic for phase-shifting network in Altium, creating custom footprints and schematic symbols for power dividers/combiners and 8-bit digital phase shifters
- Collaborated on the simulation, measurements, and fabrication of 16-element microstrip patch antenna array

X-band Microstrip Patch Antenna **January 2025 – May 2025**
Introduction to Antennas Colorado School of Mines

- Simulated and optimized patch antenna designs using full-wave FDTD simulation software
- Fabricated patch antenna and validated simulated results by measuring S_{11} with a vector network analyzer

Infrared Signal Eavesdropping and Replication **August 2024 – December 2024**
Embedded Systems Colorado School of Mines

- Designed embedded system using PIC18F25K22 to eavesdrop and replicate IR remote signals using interrupt-driven finite state machine
- Proposed a secure transmission protocol to defend against eavesdropping involving a rotating access and acknowledgment