

Aarav Todd

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SUMMARY

Electrical engineering student with hands on experience in **software defined radio, digital signal processing**, communications, remote sensing, and RF laboratory work. Coursework and supervised research developed practical skills with MATLAB, Python, C, Linux, Git based CI workflows, signal simulation, filtering, modulation concepts, FFT analysis, and **data processing**. Laboratory projects involved oscilloscopes, multimeters, spectrum analyzers, documented test procedures, and comparisons between measured results and simulations. Research work supported technical studies, experiments, stakeholder updates, and clear presentations for varied technical audiences. A 3.7 GPA reflects consistent academic performance, while peer tutoring and student radio activities demonstrate teamwork, organization, adaptability, and communication. Prepared for full time, on site laboratory work, technical mentorship, and security clearance eligibility through **U.S. citizenship**.

EDUCATION

Bachelor's Degree in Electrical Engineering
Virginia Tech GPA: 3.7
Coursework: Digital Signal Processing, Communications Systems, Electromagnetics, Computer Programming

2027
Blacksburg, VA

TECHNICAL SKILLS

- **Scientific Programming:** MATLAB, Python, C
- **Signal Processing:** Digital signal processing, FFT, Filtering
- **Software Defined Radio:** SDR hardware, SDR workflows, Signal collection
- **RF Test Equipment:** Oscilloscopes, Spectrum analyzers, Multimeters
- **Communications Analysis:** Modulation, Communications systems, Remote sensing
- **Linux Development:** Linux, Shell environments, C development
- **Version Control:** Git, Branch management, Change tracking
- **CI and Delivery:** CI/CD, Automated checks, Development workflows
- **Networking:** Networking principles, Protocols, Data communications
- **Research Methods:** Technical studies, Experiments, Simulations
- **Technical Reporting:** Test procedures, Findings, Presentations

SKILLS

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|----------|------------------|-------------------|---------------------------|
| • MATLAB | • SDR | • RF measurements | • Git |
| • Python | • DSP | • Signal analysis | • CI/CD |
| • C | • Communications | • Data processing | • Technical documentation |
| • Linux | • Remote sensing | • Networking | |

EXPERIENCE

Undergraduate SDR Research Assistant
University Research Lab

January 2026 - Present
Blacksburg, VA

Support supervised research involving software defined radio, RF measurements, communications studies, **remote sensing** workflows, and **digital signal processing**. Coordinate documented experiments, analyze results, and communicate findings across a university laboratory environment.

- Built **SDR** experiments with FFT analysis and filtering, improving repeatability across supervised **communications** studies.
- Measured RF signals with **spectrum analyzers** and oscilloscopes, then compared results against MATLAB simulations.
- Analyzed **signal collection** issues using Python and C, helping researchers isolate processing errors faster.
- Documented test procedures and findings, giving team members a consistent reference for laboratory work.
- Coordinated research updates with technical stakeholders, keeping experiments aligned with agreed project milestones.
- Applied laboratory safety practices during RF testing, supporting dependable equipment use and accurate measurements.

Digital Communications Project Student
Capstone Project

August 2025 - December 2025
Blacksburg, VA

Completed a supervised digital communications study focused on MATLAB and Python **simulations**, modulation concepts, filtering, signal evaluation, and technical presentation. Organized analysis tasks and translated experiment results into clear project documentation.

- Simulated digital communication signals in **MATLAB**, establishing repeatable baselines for project comparisons.
- Implemented **Python** filtering workflows, reducing manual analysis steps during signal evaluation exercises.
- Compared modulation results across test cases, clarifying performance differences for project teammates.
- Presented simulation findings to varied audiences, connecting technical evidence with project decisions.

- Managed experiment notes and schedules, keeping deliverables organized through final project review.
- Used **Git** based collaboration practices, preserving version history for scripts and **technical documentation**.

RF and DSP Laboratory Student

January 2025 - May 2025

Student Lab

Blacksburg, VA

Completed supervised RF and **digital signal processing** laboratory work using Linux, C, oscilloscopes, spectrum analyzers, multimeters, and structured documentation. Practiced measurement discipline, troubleshooting, experiment planning, and concise technical reporting.

- Captured waveform measurements with **oscilloscopes**, supporting clear comparisons across laboratory test conditions.
- Used spectrum analyzers to inspect frequency content, identifying unexpected signal behavior during **experiments**.
- Applied **C** programs in **Linux**, building foundational data processing skills for laboratory assignments.
- Checked circuit values with **multimeters**, helping confirm setup accuracy before signal measurements.
- Recorded procedures and observations carefully, making laboratory results easier for classmates to reproduce.
- Worked with lab partners on troubleshooting, dividing tasks and resolving equipment questions efficiently.

PROJECTS

Remote Sensing Signal Study 📅 2026

Explored remote sensing signal workflows through supervised experimentation, Python data processing, FFT analysis, and documented comparisons between simulated and measured results. Each test became a small lesson in careful observation and clear technical storytelling.

SDR Communications Prototype 📅 2025

Created a communications prototype using SDR concepts, MATLAB simulation, filtering, and modulation analysis. The project connected classroom theory with practical signal behavior, giving teammates a shared basis for discussion and review.

LEADERSHIP & AWARDS

- Dean's List recognition, 2025 to 2026, earned through sustained academic performance.
- Undergraduate Research Poster Recognition, 2026, awarded for clear presentation of supervised technical work.
- Peer Tutor, Introductory Circuits Laboratory, 2026, supporting classmates through practical problem solving.

CERTIFICATIONS

- MATLAB Onramp 📅 2026
- Linux Fundamentals 📅 2025

PROFESSIONAL AFFILIATIONS

- Student Radio and Wireless Systems Project Group, 2025 to Present, exploring communications and SDR applications with peers.
- Introductory Circuits Laboratory peer tutoring, 2026, helping students connect measurements with engineering concepts.

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST