



Aarav Todd

SDR and Digital Signal Processing Undergraduate Intern

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STRENGTHS

- 📊 **Signal analysis**
FFT studies and filtering turned noisy observations into useful evidence. Teammates valued clear comparisons between simulations and measurements.
- 🔧 **Laboratory discipline**
Careful oscilloscope and spectrum analyzer work kept experiments repeatable. A written procedure often saved time during follow up testing.
- 👥 **Technical teamwork**
Shared project tasks across research and class teams. Open status updates helped resolve equipment and analysis questions early.
- 💬 **Clear communication**
Presented technical findings in plain language for varied audiences. Feedback showed that concise visuals made signal behavior easier to discuss.
- ☰ **Organized delivery**
Tracked experiments, scripts, and notes through project milestones. Consistent file practices made reviews smoother for teammates and mentors.

SKILLS

MATLAB Python C Linux SDR

DSP Communications

Remote sensing RF measurements

Signal analysis Data processing

Networking Git CI/CD

Technical documentation

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 📅 2027 📍 Blacksburg, VA

Coursework: *Digital Signal Processing, Communications Systems, Electromagnetics, Computer Programming*

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

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.

LANGUAGES

English Native

Spanish Intermediate

MY CAREER



- Undergraduate SDR Research Assistant at University Research Lab (8 Months)
- Digital Communications Project Student at Capstone Project (4 Months)
- RF and DSP Laboratory Student at Student Lab (4 Months)

- 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

Student Lab 📅 January 2025 - May 2025 📍 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.

ADDITIONAL INFORMATION

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

REFERENCES

AVAILABLE ON REQUEST