Logan Rohlfs

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EDUCATION

B.S. Computer Engineering Expected in: **May 2027**
Texas Tech University - Lubbock, Texas **GPA: 3.88**

PROJECTS & INVOLVEMENT

Raider Aerospace Society - Texas Tech University

Space Raiders - Avionics Team Lead *March 2025 – Present*
- Led integrated hardware and firmware development through competition launch, ensuring cross-domain functional verification
- Led cross-team integration for parachute deployment and aerodynamic braking systems, aligning with the mission profile
- Prepared avionics documentation for IREC 2025, consolidating block diagrams, wiring schematics, and design justifications
- Designed and evaluated communication packet structure for telemetry and ground station data flow
- Organized and led technical workshops on Git, electronics fundamentals, soldering, and PCB design

Space Raiders - Airbrakes Flight Controller *August 2024 – July 2025*
- Designed hardware, firmware, and control logic enabling automatic in-flight air-braking to hit target altitude
- Enhanced sensor performance, embedded timing discipline, and launch diagnostics through iterative hardware/firmware refinement
- Coordinated with avionics, recovery, and airbrakes teams to align deployment and mission objectives
- Created and executed integration test plans for firmware and hardware interactions
- Expanded firmware test coverage (timing checks, sensor sanity, on-pad diagnostics) to reduce deployment risk
- Applied sensor filtering and state estimation (EWRA, Extended Kalman Filter) to improve embedded data quality

Space Raiders - HORIZON Tracking Groundstation *August 2025 – Present*
- Developing multi-link RF communication architecture for redundant telemetry and video reception
- Implementing GPS/inertial navigation dead-reckoning logic for position estimation between telemetry packets
- Building a Raspberry Pi 5 groundstation platform with telemetry dashboard, 3D trajectory mapping, and web-based UI
- Prototyping pan-tilt actuation control for automated tracking using embedded control loops

Space Raiders - APEX Flight Computer *August 2025 – Present*
- Designed custom ESP32-S3 flight computer PCB with redundant sensor suites and optimized stackup for signal integrity
- Developing embedded firmware with FreeRTOS, dual-core task separation, and sensor fusion using Extended Kalman Filters
- Implementing real-time PID control loops using simulation-derived parameters to support airbrake actuation

ConnectEDU iOS App - Allen, Texas

Student *August 2023 – May 2024*
- Led iOS development for a cross-platform student engagement app, coordinating with Android and backend teams
- Applied formal project management practices from idea proposals and Gantt planning to milestone-driven execution
- Designed and implemented core app architecture and data flows using SwiftUI, improving modularity and maintainability

Personal Projects

Systems / Controls Engineer *October 2025 – Present*
- Applied Linux development workflows across Ubuntu, Debian, Arch including remote SSH and service configuration
- Designed and prototyped mechanical/actuation components using CAD and 3D printing for embedded systems
- Prototyped real-time control loops in Python/C++ for custom control hardware
- Diagnosed night-before competition power brownouts; resolved via battery specification correction **- Pegasus (DBF Aircraft)**
- Developed and validated control system schematics for CO2 arming and ignition in a ground test rig **- Rolleron Ground Test Rig**

SKILLS

- **Software & Tools:** Git/GitHub, Matlab/Simulink, KiCad, Altium, VS Code, Fusion360, OnShape, ESP-IDF, and CMake
- **Linux:** Ubuntu, Debian, Arch; CompTIA Linux+ certified; system/service configuration, user/permissions, remote SSH workflows
- **Windows**: toolchain usage, IDE debugging, environment configuration, batch scripting, file system permissions, CLI workflows
- **Networking Foundations:** IP addressing/subnetting, VLAN design, switch/interface configuration, and network segmentation
- **Embedded & Hardware:** Microcontrollers, RTOS, soldering, SPI/I^2C/UART sensor integration, schematic/PCB design
- **Systems & Reliability:** Integration/test workflows, fault-isolation, safety interlocks & redundancy, basic signal conditioning
- **Languages:** C/C++, Python, Swift, JavaScript, Verilog/SystemVerilog, SQL, and Bash