Brody England

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EDUCATION

Northern Arizona University   **Flagstaff, AZ**
Bachelor of Science in Computer Science: GPA: 3.54   *Aug. 2022 - Expected: May 2026*
VICEROY Decree Scholar - Department of Defense program developing advanced research pipelines.

EXPERIENCE

Northern Arizona University   **Flagstaff, AZ**
Research Software Engineer Intern (CSIL and FEWSION Project)   *Jan. 2025 - Present*
- Developing an open-source Python package for computational hydrologic modeling using Neo4j, contributing to a forthcoming computational hydrology manuscript on modeling basin-scale flow networks for 1,000+ nodes.
- Optimized a global commodity-flow solver for country pairs, cutting runtime by 53% using parallelization.
- Developed a pipeline with Python to determine local facility size/importance for over 10,000 US facilities.

Air Force Research Lab (AFRL)   **Rome, NY**
Machine Learning and Robotics Research Intern   *Jun. 2025 - Aug. 2025*
- Developed a neuromorphic neural network for onboard robotic learning and traversal for a robot system, achieving over a 75% reduction in collisions/path accuracy compared to baseline.
- Validated results in both simulation and hardware trials and automated ROS telemetry and KPI analysis.
- Co-author of the SPIE Defense + Security 2025 submission "Neuromorphic Systems to Enable AI for Next-Gen Robotic Platforms" (Tracking #DS26-DS301-8).

Northern Arizona University Information Technology Services   **Flagstaff, AZ**
Senior Student IT Support Technician   *Feb. 2024 - Present*
- Lead a 30-member technical support team with the goal of improving campus-wide service operations; oversee escalations for Canvas, Google Workspace, LOUIE/PeopleSoft, and various issues for thousands of users.
- Formalized troubleshooting playbooks and onboarding paths to standardize support quality, increasing first-time resolution rates and enabling new technicians to reach full productivity significantly faster.
- Coordinate across academic and IT departments to enhance classroom technology reliability, driving efforts to reduce recurring equipment failures and streamline imaging workflows for 2,000+ cross-platform devices.

Northern Arizona University Information Technology Services   **Flagstaff, AZ**
Student IT Support Technician   *Nov. 2022 - Feb. 2024*
- Resolved over 2,000 support tickets with an emphasis on reducing user downtime and improving service.
- Applied broad troubleshooting methodologies and diagnostic tools to identify root causes across various devices.
- Handled advanced networking, authentication, VPN, and directory-service issues, including faculty escalations, with the goal of stabilizing critical campus services and minimizing repeat incidents.

PROJECTS

Explainable Autonomy Kit | *FastAPI, NumPy, JavaScript/Canvas* | GitHub
- Developed a robotics planner that visualizes route trade-offs across time, risk, energy, uncertainty, and memory.
- Built an interactive frontend enabling real-time debugging and interpretability for planning algorithms.
- Implemented custom visual layers and REST endpoints to stream planner state for live analysis.

ConTiNGENT (Convert TLA+ Into NVMe Generative Test) | *TLA+, Rust, TLC, Graphviz* | Website
- Engineered a pipeline that translates TLA+ NVMe specifications into executable NVMe SSD verification tests.
- Built Rust tooling that parses TLC traces and runs nondeterministic NVMe command sequences via **nvme-cli**.
- Reduced SSD verification time by ~60% by replacing manual NVMe workflows with automated test generation.

Self-Hosted Server | *HTML/CSS, Nginx, Docker, Debian* | brodyengland.com/portfolio
- Built and maintain a self-hosted platform providing authenticated user access to VS Code Server, SSH/web terminal, and VPN services.
- Deployed services through containerized infrastructure behind Nginx with automated TLS and backups.
- Consolidated multiple applications under one domain with stable uptime and secure access controls.

TECHNICAL SKILLS

Languages: Python, C/C++, Rust, JavaScript/TypeScript, SQL, Bash
Backend & Frameworks: FastAPI, Flask, React, Tailwind
ML / Scientific Computing: PyTorch, TensorFlow, NumPy, OpenCV
Systems & Tools: Docker, Nginx, Git, Linux, SLURM, AWS, ROS