

Anthony Tropeano

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Open to Remote / Relocation

PROFESSIONAL SUMMARY

Security engineer and toolmaker. I build tools, automate infrastructure, and write systems-level software. Founded Defend I.T. Solutions, delivering network security architecture, secure deployment pipelines, and infrastructure automation for small business clients. Work spans systems programming (C, Rust), full-stack development (React/Next.js, Node.js, Bun), and security operations (SIEM, IDS/IPS, vulnerability assessment). B.A.S. in Cyber Operations, Cyber Engineering emphasis (4.0 GPA, summa cum laude) from an NSA CAE-CO designated program. Currently building SIGINT, an open-source real-time OSINT intelligence dashboard with live multi-source data fusion and 3D globe visualization.

TECHNICAL SKILLS

Languages: Python, Rust, C/C++, JavaScript/TypeScript, SQL, Bash/PowerShell

Security: Metasploit, Burp Suite, Nmap, Wireshark, tcpdump, Suricata, Snort, Security Onion, Wazuh, Nessus, OWASP ZAP, FLARE, IDA, Ghidra, Autopsy, FTK, NIST CSF, OWASP Top 10

Infrastructure: Proxmox VE, VMware, Hyper-V, Docker/Docker Compose, Ansible, Linux hardening (UFW, SSH key-based auth), AWS (EC2), Azure (App Services), Heroku, Vercel, network segmentation, VPN architecture

Development: React/Next.js, Node.js, Express, Flask, Bun, Vite, Electron, REST/GraphQL APIs, Canvas 2D, Web Workers, IndexedDB, HLS.js, Jest, PyTest, TDD, Git/GitHub Actions, GDB

Databases & Networking: MySQL/MariaDB, PostgreSQL, MongoDB, TCP/IP, DNS, DHCP, VPN protocols (OpenVPN, WireGuard), subnetting, routing, firewall policy design

PROFESSIONAL EXPERIENCE

Defend I.T. Solutions | *Founder & Security Engineer*

May 2025 - Present

Ocala, FL

- Engineered Windows 11 migration strategy for business with unsupported legacy hardware, eliminating hardware replacement through virtualization and automation while maintaining security compliance
- Architected and deployed secure remote services infrastructure with VPN, automated client deployment, and centralized management for distributed IT operations
- Designed segmented network architecture with firewall policies preventing lateral movement, deployed SIEM monitoring (Security Onion/Wazuh), and conducted vulnerability assessments using Nessus
- Built network security appliance automation framework (Proxmox, OPNsense, Suricata) reducing manual deployment from 2+ hours to 15-47 minutes (60-87% reduction)
- Developed production company website and service platform using React, Next.js, TypeScript with automated CI/CD pipeline

University of Arizona | *Python Course Assistant*

Nov 2024 - Dec 2025

- Provided technical mentorship for students debugging Python code, resolving development environment issues, and improving code quality
- Identified recurring technical patterns and created targeted educational content to improve student outcomes

Freelance | *Full-Stack Developer*

Mar 2025 - Apr 2025

- Rebuilt legacy website using modern stack (React, TypeScript, Next.js) with automated deployment pipeline to Vercel, improving performance and eliminating hosting costs (www.petedejesse.com)

edX | **2U** | *Full-Stack Web Development Grader*

Aug 2021 - Nov 2023

- Reviewed MERN stack applications (MongoDB, Express, React, Node.js), providing technical feedback on code quality, architecture, and best practices
- Verified assignment integrity, documented plagiarism cases, and maintained consistent evaluation standards across curriculum updates

EDUCATION

University of Arizona

Dec 2025

Bachelor of Applied Science in Cyber Operations: Cyber Engineering Emphasis

Summa Cum Laude | GPA: 4.0 | NSA Designated Cyber Operations Program (CAE-CO)

LICENSES & CERTIFICATIONS

NSA Designated Cyber Operations Program Certificate - University of Arizona (Dec 2025)

Full-Stack Web Development Certificate - University of Central Florida (Aug 2021)

KEY PROJECTS & TECHNICAL CONTRIBUTIONS

SIGINT (In Development) | *Bun, React 19, Canvas 2D, Web Workers, IndexedDB, Docker, Heroku*

Open-source real-time OSINT intelligence dashboard with interactive 3D globe visualization. Ingests live data from 7 sources: OpenSky Network (aircraft), aisstream.io (AIS vessels via persistent server-side WebSocket), USGS (seismic), GDELT 2.0 (geolocated conflict/crisis events), NASA FIRMS (fire hotspots), NOAA (severe weather alerts), and aggregated RSS news feeds. All rendering offloaded to a dedicated Web Worker with OffscreenCanvas for performance. Features a correlation engine performing cross-source spatial-temporal matching with grid-indexed O(n) queries, anomaly detection against rolling 7-day regional baselines, and composite-scored alerting. Multi-pane layout system (binary split tree, drag-to-swap, named presets) with 8 pane types including entity dossier, intel feed, alert log, and live HLS video. HMAC-SHA256 token auth (HttpOnly cookies), per-IP rate limiting, IndexedDB caching with staleness management, and PWA with offline support.

Demo: sigint-5154d935429b.herokuapp.com | github.com/iitoneloc/sigint

SAFE-PC | *Python, Proxmox VE, OPNsense, Suricata, Unbound DNS, RESTful API*

BASCO Capstone Project that became the foundation for Defend I.T. Solutions. Automated conversion of end-of-life x86_64 hardware into fully configured SOHO security appliances with integrated firewall, IDS/IPS, and DNS filtering. Reduces manual setup from 2+ hours to 15-47 minutes through Python-driven orchestration and RESTful API integration.

github.com/iitoneloc/safe-pc

OxDL & pveauto | *Rust, Async Programming, Cryptographic Verification*

Published production-grade Rust library for reliable, asynchronous file downloads with cryptographic integrity validation. CLI tool (pveauto) auto-downloads and verifies Proxmox VE ISOs, ensuring supply chain security for infrastructure deployments. Published on crates.io.

github.com/iitoneloc/OxDL | github.com/iitoneloc/pveauto | crates.io/crates/oxdl | crates.io/crates/pveauto

THREADS Kernel | *C, Operating Systems*

Implemented core OS kernel components including thread scheduling, inter-process communication, system call interface, interrupt handling, and disk I/O operations.

github.com/iitoneloc/threads-kernel

Network Security Lab Environment | *Security Onion, Wazuh, Suricata, OPNsense, Proxmox*

Comprehensive home lab for security operations. SIEM deployment with custom detection rules, IDS/IPS with tuned rulesets, network segmentation with firewall policies, malware analysis sandboxing, and incident response workflows.

Defend I.T. Solutions Website | *React, Next.js, TypeScript, Tailwind CSS, Vercel*

Designed, developed, and deployed professional company website with responsive design, SEO optimization, secure contact forms with CAPTCHA protection, and accessibility compliance.

www.wedefendit.com | github.com/defendit/defendit

Dependability Tracker | *React, Next.js, TypeScript, Express, MariaDB*

Full-stack internal business application for attendance tracking with user authentication, role-based access control, automated alerting, and data visualization. Deployed with secure database architecture and RESTful API.

dependability-tracker.atropeano.com | github.com/iitoneloc/dependability-tracker

ACADEMIC HONORS

Outstanding Senior Award Nominee, Distinguished Undergraduate Scholar, Dean's List with Distinction (multiple semesters) - University of Arizona