

# Behnjamin Barlow

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## OBJECTIVE

In a Degree Path Designated for Cyber Defense Education by the National Centers of Academic Excellence in cybersecurity. I have a deep interest in my cyber competitions like CCDC and CPTC and hope to get a career in a cyber crime related field

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## EDUCATION

**Tennessee Technological University (NCAE) Cookeville, TN (08/22-Present)**

- Computer Science Bachelor of Engineering|Cybersecurity
  - Computer Science Masters of Engineering|Cybersecurity (Exp. Fall 2027)
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## WORK EXPERIENCE

**Cyber Range Application Developer(05/25 - 08/25):**

- Contributed to the development of Infrastructure as Code (IaC) solutions using Python, OpenTofu, and HashiCorp CDK
- Helped to automate the deployment and management of the CEROC Cyber Range on the Canonical MicroCloud hypervisor
- Worked closely with the Cyber Range Engineer to troubleshoot infrastructure problems and enhance overall system functionality

**Research: Satellite Security(12/24 - Present):**

- Conducting research in "Zero Trust" security for satellites build off the block-chain model
  - Developing encrypted verification methods to ensure trusted communication between company owned satellites and ground stations
  - Designing a system that incorporates load balancing and low power limitations
  - Designing and building a physical testbed simulating a satellite constellation using Jetson Orin devices as satellites and Raspberry Pis as ground stations to model communication and network interactions
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## COMPETITION EXPERIENCE

**Application Security Lead | Tennessee Tech CCDC Nationals Team(2024-2025):**

- Secured web applications and databases by hardening configurations, managing access controls, and implementing network security policies
- Hunted, detected, and neutralized real-time Red Team attacks by analyzing network traffic, investigating logs, and mitigating active threats
- Administered Linux systems and pfSense firewalls, performing OS hardening, system auditing, and automating security tasks with Bash scripts
- Architected and deployed a 16+ machine training environment, simulating attack scenarios with vulnerable services (web, mail, domain)
- Executed offensive Red Team operations within the mock environment using SliverC2 and Realm to test persistence methods and improve defensive playbooks

**Web Application Penetration Tester | Tennessee Tech CPTC Team(2025–2026)**

- Conducted comprehensive web application penetration tests on multi-tiered live environments, aligning findings with the OWASP Top 10 to identify and exploit critical flaws (e.g., SQL Injection, XSS, and authentication bypass)
- Developed a holistic attack narrative by collaborating with team members to correlate web application vulnerabilities with network-level findings, demonstrating full chain compromises from Layer 7 to Layer 3
- Authored professional-grade penetration test reports using Ghostwriter, detailing findings, analyzing business impact, and providing actionable, prioritized remediation strategies for development teams

**Linux Subject Matter Expert | Tennessee Tech CCDC Nationals Team(2025-2026):**

- Designed and deployed custom automation scripts in go and bash to rapidly enforce security policy, audit user accounts, and implement kernel-level hardening across multiple Linux machines.
  - Established proactive threat hunting and forensic capabilities to detect advanced Red Team persistence, focusing on tracking covert beacons, kernel hooks, and user-space rootkits.
  - Engineered dynamic, isolated testing environments featuring Red Team tactics and compromised machines to validate hardening scripts and incident response procedures in a live-fire competition scenario.
  - Secured critical Linux services by implementing secure configurations, strong host-based firewall policies, and advanced file integrity monitoring.
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## SKILLS

- Soft Skills: Written Communication, Problem Solving, Time Management, Teamwork, Critical Thinking, Mentorship, Public Speaking.
- Offensive Cyber Tools: Mythic C2, SliverC2, Kali Linux, Burp Suite, Hashcat, Ninja Binary, Ghidra, Nmap, Persistence Techniques, Metasploit.
- Defensive & Forensics Tools: WireShark, Autopsy, FTK Imager, Iptables, PfSense, SIEM, Advanced File Integrity Monitoring, Kernel Hooks, User-Space Rootkits.
- Programming Languages: Python, Bash, C++, HTML, CSS, JavaScript, GoLang, PowerShell.
- Databases: MySQL, MongoDB, SQLite3, PostgreSQL.
- Virtualization & Cloud: Proxmox VE, VMware, ESXi, Google Cloud Platform, Amazon Web Services, Canonical MicroCloud, OpenTofu, HashiCorp CDK.
- Infrastructure & Automation: Ansible, Salt Stack, Configuration Management, Git, GitHub, GitLab, GitKraken, TailScale, Zero Trust Architecture.
- Operating Systems: Linux (Hardening/Administration), Windows.
- Advanced Networking: Virtual Networking, DNS, VPN, Network Troubleshooting, CAN Bus/Internal Protocols.
- Specialized Concepts: Data Forensics, Computer Forensics, Data Recovery, NTA (Network Traffic Analysis), Web Security.

## LEADERSHIP EXPERIENCE

### Agile Scrum Master for the Tennessee Tech School of Music Adjudication System ( 04/25 - 12/25 ):

- Served as Scrum Master for a 6-person team , coordinating all sprints, managing the product backlog, and ensuring the timely delivery of a fully digital music jury scheduling and evaluation platform
- Oversaw the design and implementation of security features, including Azure Active Directory (Azure AD) authentication for faculty , Role-Based Access Control (RBAC) via SharePoint Groups, and strict Least-Privilege Enforcement , ensuring compliance with institutional data management standards.
- Successfully developed the platform entirely within the university's existing Microsoft 365 licensing (SharePoint Online, Power Automate, Forms, Bookings, Teams) , delivering a fully digital, integrated, and sustainable solution that eliminated the need for expensive third-party platforms and reduced administrative workload.
- Directed the design of a NoSQL/List-based data model and managed the core Power Automate workflows and Excel Office Scripts responsible for automated data routing and feedback generation

### Tennessee Tech Cyber Eagles Volunteer | President (05/25 - Present):

- Engineered and Deployed the Official Club Website (cybereagles.org), establishing a permanent static site using free hosting to ensure technical longevity and resource efficiency.
- Coordinated and Hosted regular club meetings, securing engagement from guest speakers from leading technology companies and government agencies.
- Developed and executed outreach initiatives with related academic departments and student groups, successfully increasing club visibility and membership.
- Managed administrative operations, partnering with university administration and student organizations to manage budgets, secure necessary funding, and ensure smooth club operations.

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## ON CAMPUS INVOLVEMENT

### Tennessee Tech Cyber Interest Group Mentor (09/24 -Present):

- Developed and Led Technical Training Sessions on complex cybersecurity topics, including digital forensics, privilege escalation, and rootkits, preparing students for real-world offensive and defensive security challenges
- Designed and Delivered Educational Content, including detailed meeting agendas, presentations (slides), and practical labs to clarify concepts for a diverse audience
- Cultivated a Dynamic, Collaborative Learning Environment for students across all skill levels, significantly improving group knowledge and practical application skills in areas like network defense and ethical hacking
- Utilized LXD cyber range with SaltStack to create secure, repeatable, and realistic training environments for hands-on practice, mirroring professional cybersecurity lab setups
- Collaborated with fellow mentors and group leads to strategize meeting schedules and content flow, ensuring timely and smooth execution of all training sessions

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## OTHER EXPERIENCE

### Personal Website:

- Established and Maintained a permanent static website, nightwalker.cv, utilizing free software hosting solutions to ensure optimal resource efficiency.
- Configured a custom domain (nightwalker.cv) to serve the site, centralizing professional content, public code repositories (GitHub), and academic projects.
- The site serves as a technical portfolio Including detailed insights into cybersecurity work, showcasing technical proficiency and professional contribution

### Cyber Truck Challenge 2025:

- Performed specialized security assessments targeting vehicle communication systems and embedded hardware, including analysis of CAN Bus and internal protocols.
- Utilized deep analysis techniques to exploit security vulnerabilities in the simulated automotive environment.

### Home Lab:

- Managing a high-performance virtualization cluster using dual Proxmox hypervisors, providing 50 CPU cores and 200 GB of RAM to support complex, resource-intensive cybersecurity operations.
- Established secure, isolated virtual ranges dedicated to specialized training and testing, including local malware analysis, Command and Control (C2) testing, and execution of complex Linux scripting tasks
- Supported competitive cybersecurity training (CCDC) by designing and deploying complex server infrastructure and mock competition environments for team exercises
- Configured and utilized an Ubiquiti managed switch to implement robust network segmentation, traffic control, and efficient management across all lab resources
- Designed and deployed a dedicated Raspberry Pi appliance to function as a Tailscale router and VPN endpoint, enabling secure, encrypted remote access to the entire lab network
- Automated lab functionality by implementing Wake-on-LAN (WoL) via the Raspberry Pi, allowing remote power cycling of the Proxmox servers to optimize energy consumption and accessibility
- Developed a plan for advanced digital forensics capabilities, designating existing hardware and leveraging specialized tools (e.g., drive duplicators, write blocker equipment, forensic bridges) to build a dedicated acquisition and analysis station