



Recommendation Letter for Behnjamin Barlow

March 14, 2025

I am pleased to write this letter of recommendation for Behnjamin Barlow who is applying for a travel grant to attend the ERAU-NASA-NSF Aerospace Cybersecurity Workshop. Behnjamin is an undergraduate Computer Science student/cybersecurity concentration.

Behnjamin is one of our top students with a GPA of 3.8. He is a member of CCDC team and a lead for the Defense Cyber Interest Group at Tennessee Tech. He has been helping build MOCK infrastructure for live defensive and offensive practice. He is an MS fast-track student currently working on a satellite security research problem and he is developing a testbed at Tennessee Tech for his research.

I believe Behnjamin will benefit a lot from the opportunity of attending the ERAU-NASA-NSF Aerospace Cybersecurity Workshop to learn about aerospace security topics and refine his research problem and hands-on skills. For his skills and the expected benefit, I highly recommend Behnjamin to receive this travel scholarship.

If you have any questions, please do not hesitate to reach out to me.

Sincerely,

Muhammad Ismail, PhD, SMIEEE
Director of Cybersecurity Education, Research, and Outreach Center (CEROC),
Associate Professor of Computer Science,
College of Engineering,
Tennessee Tech University,
Email: mismail@tntech.edu.

Interest letter 2025 ERAU-NASA-NSF AeroCyber Workshop

Behnjamin H. Barlow

The ERAU-NASA-NSF AeroCyber Workshop is a leading event in the modern age and attending this workshop would provide an invaluable opportunity for me to deepen my knowledge of satellite security, engage with experts in aerospace cybersecurity, and contribute to discussions on emerging threats in space-based communications.

At Tennessee Tech, I have been actively involved in cybersecurity research, particularly in satellite security and their networks. My research focuses on skewing signals between satellites and control towers and implementing Zero Trust architectures to secure space communication and prevent any possible malicious input. I am also investigating AI model deployment across satellite networks, ensuring secure, on-demand processing of critical tasks. This workshop aligns directly with my research, allowing me to gain deeper insights into aerospace cybersecurity challenges and solutions.

In addition to research, I actively participate in cybersecurity competitions, and I am eager to compete in the aerospace cybersecurity CTF challenge at this event. These competitions provide a hands-on approach to solving real-world cybersecurity issues, and I hope to refine my technical skills while learning from experienced professionals in the field.

Long-term, my goal is to work in national defense and contribute to keeping our country safe. Attending this workshop will help me expand my expertise, connect with industry professionals, and apply new insights to my ongoing research. The knowledge and networking gained from this event will be instrumental as I continue developing innovative approaches to securing space systems and critical infrastructure.

Thank you for your time and consideration.

Behnjamin H. Barlow

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SFS Scholar:

- In a Degree Path Designated for Cyber Defense Education by the National Centers of Academic Excellence in cybersecurity.

SKILLS:

Technical Skills:

- Linux Hardening, C++, Git, Ansible, Salt Stack, MySQL, JavaScript, Networking, Block Chain, Zero Trust, Web Development, Web Security, Nmap, SliverC2, Reverse Engineering, Ghidra, Python, Golang, HTML, PowerShell, MongoDB, DNS

Soft Skills:

- Teamwork, Leadership, Problem Solving, Time Management, Critical Thinking

EXPERIENCE:

Research:

Satellite Security:

- 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. While designing a system to dynamically distribute AI models across satellites for on-demand deployment while incorporating load balancing and low power limitations.

Campus Organizations:

Cyber Eagles:

- I am currently a Defensive Cyber Interest Group team lead, overseeing projects aimed at presenting defensive cybersecurity concepts, managing a vSphere range, and preparing individuals for real world cybersecurity concepts, as well as fostering a collaborative learning environment for students ranging from new to experienced.

TN Tech CCDC Team Member:

- I’m an alternate for Linux systems & Firewalling on Palo Alto/Pfsense
- My part requires knowledge with managing firewall systems as well as many Linux systems implementing the following skills: Bash, System hardening, user and file auditing, SIEM, and Firewall management.
- Created multiple mock CCDC infra consisting of over 16 machines with web, mail, file share, and domain systems configured to be vulnerable with persistence and Red Teaming using SliverC2 and Realm as well as creating vulnerabilities within Linux systems with PAM/SSH/Services for a live training sessions.

Projects:

Dev-Ops Server:

- Designed virtual servers on Google Cloud Platform (GCP) to support multi-environment applications.
- Automated server configuration, application deployment, and system maintenance using Ansible.
- Documented the entire project lifecycle in a detailed professional manual, enabling reproducibility and providing comprehensive guidance for replication or future development.

Rubber Ducky:

- Engineered a functional Rubber Ducky device using a Raspberry Pi Pico to simulate a HID (Human Interface Device) attack for ethical hacking and penetration testing.
- Developed payloads to execute a reverse shell.

EDUCATION:

Tennessee Technological University (NCAE)

Major: Computer Science Bachelor of Engineering | Cybersecurity (Fall 2025)

GPA: 3.8

Major: Computer Science Masters of Engineering | Cybersecurity (Fall 2027)

GPA: N/A