Frederick Berberich

(845)-499-7965 · Frederick.Berberich1@Marist.edu · https://fberberich.github.io

EDUCATION

Marist University   **Poughkeepsie NY** · August 2021 – May 2025
Bachelor of Science (BS) in *Cybersecurity* | Cum Laude (**GPA:** 3.5) | *Omicron Sigma Sigma* Honors Society
Minors: *Information Technology*, *Information Systems*, *Computer Science*

SKILLS

Programming: Python, Java, Typescript, JavaScript, SQL, PHP, HTML/CSS, Bash, Jupyter Notebook, Google Collab, RESTful APIs, LLMs, React, ViteJS, Tailwind, Nodejs | **Cybersecurity Tools:** Wireshark, Nessus, Metasploit, Nmap, Kali Linux | **Networking & Hardware:** LAN/WAN, VLANs, TCP/IP, DHCP, Subnetting, Cisco (Routers, Switches), Juniper (Switches), OSPF, BGP, RDP | **Operating Systems:** MS Windows Server, MacOS, Unix (Kali, Ubuntu, RHEL), z/OS, FreeBSD| **DevOps & Deployment:** Docker, AWS Services (EC2, S3), Git, CI/CD | **Virtualization** VMware (ESXI, vSphere), Proxmox, GNS3, Cisco Packet Tracer **Machine Learning:** PyTorch, Scikit-Learn, KNN, XGBoost**,** Google Collab, Jupyter Notebook | **Data Analysis & Visualization:** Pandas, NumPy, Matplotlib, Seaborn, eslogger, SpriteTree.

EXPERIENCE

Marist IBM Joint Study · System Administrator   **Poughkeepsie, NY** · August 2024 – May 2025
- Maintained Linux environments provided to students and faculty from the HPC cluster and IBM/Lenovo servers.
- Responded rapidly to recurring system outages caused by misconfigurations on a professor's research server and errors within the SAN, diagnosed root causes and restored services with minimal downtime.
- Configured RDP servers for users to access Linux and Windows environments remotely and issued secure remote sign-ins.

Marist College CS/IS/Information Technology · Networking Lab Assistant   **Poughkeepsie, NY** · March 2023-May 2024
- Conducted maintenance on Cisco Switches and Routers by replacing fans or updating software on equipment installed on the racks.
- Organized and restructured firewalls, switches, routers, and servers stored on multiple racks in the lab.
- Tutored students about network protocols used within Layer 2 and Layer 3 networking (VLANS, TCP/IP, STP, OSPF, Static Routing).

Marist College Summer Research Fellowship · Low Energy Bluetooth Researcher   **Poughkeepsie, NY** · May 2023–August 2023
- Captured and studied 20 PCAP files using Wireshark, to examine RF signal characteristics and protocol behavior within BLE.
- Conducted in-depth analysis of BLE communication protocols, identifying vulnerabilities in device pairing and data exchange processes relevant to attacks that may occur in a public setting.
- Engineered a process to defeat BLE MAC address randomization, highlighted significant privacy vulnerabilities in consumer BLE devices and informed security posture improvements. Presented findings at **CURSCA 2024** & **2024 Hudson Valley Cyber Summit.**

PROJECTS

Mac Malware (Trojan Viruses) Machine Learning Capstone Project · Machine Learning Engineer   **Poughkeepsie, NY** · Fall 2024 – Spring 2025
- Utilized *eslogger* to collect logs generated on an Apple computer and store them as JSON files to later be converted to CSV.
- Analyzed computer logs for suspicious behavior linked to viruses using SpriteTree, a data visualization tool.
- Developed a machine learning model with a detection rate of 72% using KNN algorithm and sci-kit learn library. Optimized the model by exploring alternative algorithms such as XGBoost, increasing the detection rate to 95%. **Awarded by IEEE.**

Ceph Storage Cluster · Marist IBM Joint Study Project   **Poughkeepsie, NY** · Fall 2024 – Spring 2025
- Maintained a *Ceph* cluster and multiple VM host servers to provide a scalable Platform as a Service (PaaS) solution for Marist faculty, staff, and students**. Achieved First Place in the IBM Mid-Hudson Valley Tech Connect Conference 2024.**
- Expanded a *Slurm*-managed HPC cluster to 800+ cores and 48 GPUs, optimizing it for AI and compute-intensive workloads.

Lifeguard Web App · Software Engineer   **Poughkeepsie, NY** · Spring 2025 - Present
- Developed an AI-powered web app for intelligent job discovery through resume parsing and keyword-driven search.
- Utilized GPT-4.1 to analyze resumes and generate top 10 job title recommendations using LLM-driven inference.
- Built a TypeScript-based backend leveraging OpenAI and JSearch APIs to deliver scalable, real-time job matching solutions.

OTHER

- **Leadership***:* Marist Cybersecurity Club - *Secretary* (March 2022 – March 2023), *Vice President* (March 2023 – February 2025),
- **Award:** Winner of *IEEE* Capstone Award - 2025
- **Publication:** *Detecting Mac Malware by Implementing a Machine Learning Model* (Pending, 2025)
- **Presentation Award:** 1st place for Joint Study category IBM Tech Connect - 2024