PRAJNA BHANDARY

prajna.bhandary.22@gmail.com | (443)-527-5965 | https://www.linkedin.com/in/pjbhandary/ | https://github.com/prajbh

EDUCATION

University of Maryland Baltimore County(UMBC) Expected Graduation: August 2025
Ph.D. Candidate, Computer Science Cumulative GPA: 3.6/4.0
University of Maryland Baltimore County(UMBC) Graduated: December 2020
M.S., Computer Science Cumulative GPA: 3.6/4.0

SKILLS

Programming/Scripting: Python, PowerShell, C++, C, Java
Automation & Data Analysis: Jupyter, Scikit-Learn, PyTorch, TensorFlow, HuggingFace, Pega
Cloud Platforms: Azure, IBM Cloud
Analysis Tools: Ghidra, Wireshark, YARA (basic), Scapy, VirusTotal, Proxmox, Cofense Triage
Reverse Engineering & Debugging: (familiar) IDA Pro, Ghidra, GDB, x64dbg, WinDbg
Version Control & Dev Tools: Git, Visual Studio, IntelliJ IDEA, ServiceNow
Databases: MySQL, MongoDB, Cloudant

WORK EXPERIENCE

Graduate Assistant - Teaching Assistant - *UMBC* Feb 2019 - present
- **Courses:** Introduction to Machine Learning, Software Reverse Engineering, Computer Networks, Artificial Intelligence, Introduction to Network Security, Data Structure, Object Oriented Programming(C++), Assembly language.

Threat Intel Research Intern - *Palo Alto Networks Unit42 - Threat Intel Research* May 2024 - August 2024
- Developed a proof-of-concept (PoC) using Llama3 and Mistral models to simulate Command and Control (C2) operations in ransomware attacks, demonstrating advanced AI-driven scenarios.
- Fine-tuned AI models and applied prompt engineering to simulate autonomous attacks, showcasing potential vulnerabilities and improving defense strategies.

Summer Associate - *Navy Federal Credit Union - Automation & Special Projects* May 2023 - August 2023
- Developed a tool to cluster text messages and extract actionable data insights, improving analysis speed and accuracy.
- Explored the application of large language models (LLMs) to accelerate incident resolution, optimizing incident management processes and improving resolution times.

Software Developer/Cybersecurity Specialist - *IBM CISO Innovation & Remediation* May 2021 - May 2023
- Designed and implemented PoCs to detect unknown threats and enhance internal network visibility.
- Developed tools for attack path detection and external connection analysis using the MITRE ATT&CK Framework, reducing manual analysis time by $\sim 15\%$.
- Built an NLP-powered IBM Cloud application to automate dynamic response generation, improving efficiency by $\sim 50\%$.

PUBLICATION AND RESEARCH WORK

Malware Analysis using Machine Learning August, 2020 – present
- Bhandary, P., Nicholas C. *A Behavioral Analysis of Ransomware in Active Directory: A Case Study of BlackMatter, Conti, LockBit, and Midnight.* [Paper] (Accepted at ISDFS 2025)
- Bhandary, P., Joyce, R., and Nicholas, C. Ransomware Evolution: Unveiling Patterns Using HDBSCAN. CAMLIS'24. [Paper])
- Bhandary, P., Wiredu-Aidoo, R., Palakurthi, V., Edara, M., and Nicholas, C., *Malware Trends using Similarity Matrix.* MTEM '23:Malware Technical Exchange Meeting. [Poster]
- Bhandary, P., Adetunji, I., Kiendrebeogo, A., Vieson, C., Joyce, R.J., Eren, M.E., and Nicholas, C. *Malware Antivirus Scan Pattern Mining via Tensor Decomposition.MTEM '22: Malware Technical Exchange Meeting.* [Poster]

Cybersecurity and AI August, 2023 – present
- Bhandary, P., and Nicholas, N., *"AI-Driven Ransomware Tactics"* Presented at the CODEBOT'25 Workshop on "Can We Trust AI-Generate Code?", February, 2025. []Position Paper]
- Bhandary, P., *"From Assistance to Dependence: A Graduate Teaching Assistant's Take on AI in Education"*, Presented at the CODEBOT'25 Workshop on "Can We Trust AI-Generate Code?", February, 2025. []Position Paper]

Cryptographic Protocol Shapes Analyser (CPSA) August, 2019 – August, 2023
- Bhandary, P., Zieglar, E., and Nicholas, N., *"Searching for Selfie in TLS 1.3 with the Cryptographic Protocol Shapes Analyzer"*, Protocols, Strands, and Logic. []Paper]