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Mohammad Ali

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EDUCATION

University of North Dakota, Grand Forks, ND

Aug 2023 - May 2025

M.S. in Electrical Engineering

Advisor: Jielun Zhang

University of Dayton, Dayton, OH

Dec 2022

B.S. in Computer Engineering

EXPERIENCE

IC3 Research Assistant

08/2023 - Present

Laboratory of Innovations in Cybersecurity, Computer networks, and Communication. Primary focus on AI/ML in Intrusion Detection Systems, Radio Frequency and Large-Language-Models. Managed undergraduate projects during summers.

ACNS Research Assistant

02/2023 - 05/2023

Advanced Communications and Network Security laboratory focusing on Bluetooth security. Started project from scratch, replicating recent Bluetooth attacks and developing defensive countermeasures.

National Cyber League Student Advisor

11/2021 - 12/2021

Lead team of students for a National Capture the Flag Competition. Managed learning, work flow, meetings and final selection of candidates.

PUBLICATIONS

- **M. Ali**, J. Zhang and F. Ye, "Mitigating Cross-Transport Key Derivation Attacks in Bluetooth Communication" *IEEE NAECON 2023*
- **M. Ali**, and J. Zhang "Explainable Artificial Intelligence Enabled Intrusion Detection in the Internet of Things" *IEEE ISICN 2024*
- F. Li, **M. Ali**, and J. Zhang "Cyber Attack Detection in IoT Using Enhanced Stream Classification Algorithm" *IEEE ISICN 2024*
- **M. Ali**, and J. Zhang "Automatic Modulation Recognition Across SNR Variability Via Domain Adversary" *IEEE VTC Fall 2024*
- **M. Ali**, and J. Zhang "Exploring the Effectiveness of Synthetic Data in Network Intrusion Detection through XAI" *IEEE CARS 2024*
- **M. Ali**, I. Udoidiok, F. Li, and J. Zhang "A Review on Generative Intelligence in Deep Learning based Network Intrusion Detection" *IEEE CARS 2024*

PROJECTS

3D Waste Plastic Recycling | University of Dayton

08/2022 - 12/2022

Developed methodology to clean and sanitize plastic utensils taken from dining rooms. Group tested different designs by using already developed technology: washing machines and ultrasonic cleaners. I worked on integration of relay sensors, water pumps, and Arduino to automate infrastructure.

LoRa Data Acquisition & Analysis | University of Dayton

01/2022 - 05/2022

Initial setup of Internet of Things devices (sensors) on an urban agricultural setting for non-profit, Mission of Mary Cooperative. I spearheaded the research for specific communication protocols, and decided upon LoRa for data acquisition. Group built, setup and tested the infrastructure on site.

Arduino ESP32 Wardriver

11/2021 - 12/2021

Put together an Arduino based wardriver written in C++ via an ESP32 development board, NEO-6M GPS and SSD1306 display. All captured data logged and transferred to Raspberry Pi via Python & Shell scripts.

SKILLS

- Cybersecurity Tools: C# scripts, IDA-Pro, BloodHound, Wireshark
- Programming: Python, C, C++, POSIX Shell
- Linux and Network Administration
- Arduino IoT devices & Raspberry Pi integration
- USRP (B210) with GNU Radio

LEADERSHIP AND EXTRACURRICULARS

- CARS ChatGPT Poster 1st Place \$1000 Prize
- CompTIA Security+ Certificate (SEC+)
- Offensive Security Certified Professional (OSCP)
- Certified Red Team Professional (CRTO)
- National Cyber League Individual:
 - National Cyber League FA 2021: 193/6480
 - National Cyber League SP 2022: 77/6022