Curriculum Vitae

Arastoo Zibaeirad

azibaeir@uncc.edu

RESEARCH INTEREST

Cybersecurity, AI, Software Engineering

EDUCATION

University of North Carolina at Charlotte, USA　　　　　　　　　Aug 2023 - present
Ph.D. in Computer Science

University of North Carolina at Charlotte, USA　　　　Aug 2022 - Anticipated Dec 2024
M.Sc. in Computer Science
- Thesis title: Automatic Benchmarking Large Language Models (LLMs) for Software Vulnerability Detection and Patching

Iran University of Science and Technology, Iran　　　　　　　　Aug 2014 - Mar 2019
B.Sc. in Electrical Engineering
- Thesis title: Online Full-Duplex Temperature Monitor and Control

HONORS AND AWARDS

University of North Carolina at Charlotte Graduate Scholarship (Full Tuition Award), USA　　2023
New Mexico State University Graduate Scholarship (Full Tuition Award), USA　　2022
First Prize, Huawei ICT Competition, Huawei HQ, Shenzhen, CN　　2018
- Won 1st prize in Huawei's global competition on Network Routing, Switching, and Security, competing against over 2000 participants in Iran.
Iran Univesity of Science and Technology Undergraduate Scholarship (Full Tuition Award), IR　　2014

RESEARCH AND TEACHING EXPERIENCE

University of North Carolina at Charlotte, USA　　　　　　　　Jan 2024 - present
Computer Science Researcher

- Developed an automated framework for evaluating and enhancing large language models in software vulnerability detection and patching, integrating novel data collection methods and automated evaluation metrics to improve accuracy and reliability in real-world codebases.

- Developed generative adversarial models to simulate and launch DDOS attacks, effectively testing and evaluating the resilience of black-box machine learning models.

University of North Carolina at Charlotte, USA　　　　　　　　Aug 2023 - May 2024
Teaching Assistant

- Assisted in teaching two courses: IT Infrastructure and Security (ITIS-3246) and Network Security (ITIS-8167).

- Provided support to students with their lab work in Linux, networking, and security.

- Facilitated a deeper understanding of course material through one-on-one and group tutoring sessions.

New Mexico State University- Collaborated with DoE, USA   Aug 2022 - Aug 2023
Computer Science Researcher

- Worked on detecting and mitigating cyber and cyber-physical system attacks using various techniques, including game theory, graph theory, blockchain, and machine learning.

New Mexico State University, USA   Aug 2022 - Dec 2022
Teaching Assistant

- Assisted in teaching Operating System course (CS 474)

PROFESSIONAL EXPERIENCE

Golrang System Tehran, Iran   Mar 2022 – Aug 2022
Software Developer
Golrang System is a leading holding company with a diverse portfolio that includes software products and networking solutions.

- Implemented an automated system using PingCastle to efficiently detect and manage folder sharing in Active Directory, enhancing overall security.

Andisheh Negar Pars Tehran, Iran   May 2019 – Mar 2022
Researcher & Software Developer
Andisheh Negar Pars specializes in delivering security solutions and network infrastructure services to a variety of companies, focusing on innovative and robust security measures.

- Led the development and integration of security software for Incident Response in an enterprise-level, distributed, and private SIEM environment, successfully completing a large project on historical event correlation and integrating projects such as MISP, TheHive, and Cortex.

- Implemented advanced log sequencing and developed a log management application using NoSQL Elasticsearch, integrating Event Query Language (EQL) and Domain Specific Language (DSL) to enhance anomaly detection and incident alerting.

- Conducted in-depth research on open-source and commercial security solutions including ELK stack, Elastalert, MISP, Sagan, TheHive, Cortex, and User & Entity Behavior Analytics (UEBA), resulting in the development of an advanced open-source application for event correlation and incident alerting.

- Customized detection rules based on the MITRE ATT&CK framework, integrated multiple security tools using APIs with Django Rest Framework, and optimized Elasticsearch and Logstash performance, significantly enhancing the application's logging and alerting capabilities while managing an Elasticsearch cluster using Docker.

PUBLICATIONS

1. **Zibaeirad, A.**, Koleini, F., Bi, S., Hou, T., & Wang, T. (2024). A Comprehensive Survey on the Security of Smart Grid: Challenges, Mitigations, and Future Research Opportunities. *arXiv preprint* arXiv:2407.07966.

2. **Zibaeirad, A.**, & Vieira, M. (2024). SysLLMEval: A Comprehensive Benchmarking Framework for Evaluating Large Language Models in Software Vulnerability Detection and Patching. *Submitted to ACM International Conference on the Foundations of Software Engineering (FSE) 2025*.

LEADERSHIP AND VOLUNTEER ACTIVITIES

Student Scientific Association (Iran University of Science and Technology)   2016 - 2017
President

- Organize and conduct annual conferences, workshops, and extra curriculum classes to promote the latest advancements in electrical engineering.
- Coordinate collaborative projects with industry partners to provide hands-on experience for students.

Innovation and Research Club (Iran University of Science and Technology)   2017 - 2018
Technical Lead

- Manage club communications, schedule meetings, and maintain accurate records of all club activities and decisions.
- Coordinate administrative tasks, handle correspondence, and assist in organizing events and projects to ensure smooth club operations.