

Curriculum Vitae

Arastoo Zibaeirad

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RESEARCH INTERESTS

Vulnerability Detection and Analysis, Large Language Models, Adversarial Machine Learning, Automated Program Repair, Software Security

EDUCATION

Ph.D. in Computer Science

University of North Carolina at Charlotte, USA

Aug 2023 - present

New Mexico State University, USA

Aug 2022 - Aug 2023

M.Sc. in Computer Science

University of North Carolina at Charlotte, USA

Aug 2023 - Anticipated May 2025

B.Sc. in Electrical Engineering

Iran University of Science and Technology, Iran

Aug 2014 - Mar 2019

• Thesis title: Adaptive Full-Duplex Real-Time Temperature Monitoring and Control System

PUBLICATIONS

1. **Zibaeirad, A.**, & Vieira, M. (2024). VulnLLMEval: A Benchmarking Framework for Evaluating Large Language Models in Software Vulnerability Detection and Patching. [arXiv:2409.10756](#)
2. **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:2407.07966](#). Under review for [Proceedings of the IEEE Journal](#).

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

Huawei ICT Competition, Huawei HQ, CN 2018

- Won 1st prize in Huawei's global competition on Network Routing, Switching, and Security, held at Huawei's Headquarters in Shenzhen, China.

Iran Univesity of Science and Technology Undergraduate Scholarship (Full Tuition Award), IR 2014

RESEARCH AND TEACHING EXPERIENCE

University of North Carolina at Charlotte, USA

May 2024 - present

Research Assistant

- Developed an automated framework for evaluating LLMs in software vulnerability detection and repairing, incorporating innovative data collection techniques and automated evaluation metrics.

- Developed generative adversarial models to simulate and launch DDOS attacks, 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 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

Research Assistant

- Worked on detecting and mitigating cyber and cyber-physical system attacks using various techniques, including game theory, graph theory, blockchain, and machine learning.
- Worked on the explainability of black-box DDoS detection systems using Generative Adversarial Networks.

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 holding company with a diverse portfolio of software and networking solutions.

- Implemented an automated system with [PingCastle](#) to detect and manage improperly shared folders in Active Directory, identifying company-wide access, alerting, and revoking unauthorized permissions.
- Developed a tool to gather version and detail information on network and software devices, using the CVE details API to check for the latest patches and ensure continuous security monitoring.

Andisheh Negar Pars Tehran, Iran

May 2019 – Mar 2022

Researcher & Software Developer

Andisheh Negar Pars provides security solutions and network infrastructure services to various companies, focusing on reliable security measures.

- Developed and extended enterprise-level security software for vulnerability detection by implementing historical event correlation in a distributed private SIEM environment, building a log management application with NoSQL Elasticsearch, utilizing [Event Query Language \(EQL\)](#) for multi-step attack sequencing and [Query Domain Specific Language \(DSL\)](#) for efficient filtering. Automated [MITRE ATT&CK](#) rule conversion to streamline vulnerability detection upon new publications.
- Integrated major projects like [MISP](#), [TheHive](#), and [Cortex](#) into the SIEM, enhancing vulnerability detection capabilities through APIs built with [Django Rest Framework](#).
- Conducted comprehensive research on open-source and commercial security tools, including [ELK \(Elasticsearch, Logstash, Kibana\)](#), [Sagan](#), and [UEBA \(User and Entity Behavior Analytics\)](#), driving informed decision-making and solution implementation to meet enterprise security needs.

CERTIFICATE

Huawei Certified Network Associate (Official Certification)

2018

Cisco Certified Network Professional (Local Certification)

2018

Cisco Certified Network Associate (Local Certification)

2012

CompTIA Network+ (Local Certification)

2012

LEADERSHIP AND VOLUNTEER ACTIVITIES

International Symposium on Reliable Distributed Systems (SRDS)

2024

Volunteer

- Contributed to organizing the symposium, providing logistical support and helping with registration, setup, and communication with attendees.

IEEE Intelligence and Security Informatics (ISI)

2023

Volunteer

- Assisted in organizing and managing conference sessions, working closely with participants and speakers to ensure smooth operations.

Student Scientific Association (Iran University of Science and Technology)

2016 - 2017

President

- Organized annual conferences, workshops, and classes to promote advancements in electrical engineering.
- Coordinated collaborative projects with industry partners to provide hands-on experience for students.