Mati Ur Rehman

Address: [Charlottesville, Virginia] — Phone: [+14342576136] — Email: [wkw9be@virginia.edu]
LinkedIn: https://www.linkedin.com/in/mati-ur-rehman-02949a157

Education

University of Virginia Charlottesville, Virginia
Doctorate of Science in Computer Science *January 2023 - May 2027 (Expected)*

- Focus: System Security using Deep Learning.
- CGPA: 4.0/4.0
- Selected Coursework: Cyber Threat Detection, Machine Learning, Natural Language Processing, Network Security

Lahore University of Management Sciences (LUMS) Lahore, Pakistan
Bachelor of Science in Computer Science *September 2018 - May 2022*

- CGPA: 3.76/4.0
- Selected Coursework: Deep Learning, Machine Learning, Data Science, Computer Vision, Network Security

Experience

Katana Graph, Inc Austin, Texas
Deep Learning Internship *June 2022 - December 2022*

- Led the development of high-quality code to process extensive graph data, implementing cutting-edge Graph Neural Networks for enhanced analysis.
- Designed and implemented a scalable host intrusion detection system, contributing directly to Katana's Cybersecurity initiatives.
- Fostered collaboration with industry leaders and renowned researchers, gaining valuable insights and refining skills in a dynamic professional environment.

Projects

Privacy-Aware Approach to Detecting System Intrusions.

- We implemented a novel approach by integrating federated learning and graph representation learning techniques on causal graphs derived from system logs. This combined methodology enhances the detection of Advanced Persistent Threats.
- Our system not only achieves comparable detection performance to centralized learning systems but also prioritizes the preservation of user privacy in handling logs—a factor often overlooked by traditional systems.

Publications

Mati Ur Rehman, Hadi Ahmadi, and Wajih Ul Hassan. "FLASH: A Comprehensive Approach to Intrusion Detection via Provenance Graph Representation Learning." IEEE Symposium on Security and Privacy (S&P), 2024.

Technical Skills

Machine Learning Expertise: Graph Representation Learning, Natural Language processing, Computer Vision

Programming Languages: Python, Zeek, C/C++, JavaScript, SQL

Frameworks: GRPC, React, Node.js, Flask, PyTorch, torch-geometric, Keras

Tools: Vagrant, Caldera (Red team emulation tool)

Libraries: NumPy, Matplotlib, pandas, Scikit-Learn, OpenCV

Services: Google Cloud Platform, Firebase, AWS