



Fully Funded PhD Opportunity

The IQSeC Lab at the Department of Computer Science, University of Texas at El Paso (UTEP), is seeking several self-motivated PhD students to start in Fall 2024/Spring 2025/Fall 2025. Research at the IQSeC Lab intersects Machine Learning (ML), Endpoint Security, Network Security, and Quantum Secure Communication.

Research Direction - ML and Endpoint Security

In this area, we investigate continual learning (CL) for ever-evolving and intelligent malware classification and detection systems. Our proposed state-of-the-art (SOTA) CL techniques enable these systems to adopt sequential learning, accommodating the constant influx of new malware types and shifts in data distribution.

Research Direction - ML and Network Security

In this research, we investigate advanced ML methods to uncover vulnerabilities in the leaked side-channel information of encrypted network traffic, such as Tor. Beyond merely identifying these vulnerabilities, we design SOTA attacks to exploit them and propose SOTA techniques to counteract existing and potential threats, thereby protecting users' online privacy.

Research Direction - Quantum Network Security

In this research, we investigate the post-quantum vulnerabilities in the existing communication and network systems. Furthermore, we propose novel quantum-secure solutions based on quantum key distribution (QKD) and post-quantum cryptography (PQC) for the post-quantum era.

Prospective PhD Student

A preferred prospective PhD student will hold a bachelor's degree in Computer Science, Software Engineering, Computer Engineering, Electrical Engineering, or a related field. The candidate should have a strong inclination and intrinsic motivation to pursue research in machine learning and cybersecurity, and possess **at least three** of the preferred skills or experiences. *Note that your goal should be to become a strong and mostly independent researcher*, and my goal is to make sure you have the right set of resources to accomplish that goal.

Preferred Skills/Experience

1. Programming skill in Python, PyTorch and/or TensorFlow
2. Hands-on/Research experience in Malware Analysis
3. Hands-on/Research experience of Wired and Wireless Networking
4. Hands-on/Research experience in ML/AI
5. Hands-on/Research experience in Large Language Model (LLM)
6. Fundamental understanding of quantum information science

**Familiarity with, or work experience in, Kali Linux, the MITRE ATT&CK framework, Pentesting, and the Hugging Face platform is a plus.

Instructions for Emailing

- Ensure you have reviewed the relevant papers on the Lab's website and the PI's Google Scholar profile to avoid any surprises if you are invited for an interview.
- For general questions about admission requirements, please refer to the [CS@UTEP PhD page](#).
- Please use the following subject line for your email: 'Prospective PhD Student - Fall 2024/Spring 2025/Fall 2025'.
- Please make sure to include the following elements in your email: (i) CV/Resume, (ii) transcripts (a partial transcript is acceptable), (iii) a one-page research statement that elucidates your background and research interests, and (iv) TOEFL/GRE scores, if applicable.



Saidur Rahman
Email: saidur.rahman@mail.rit.edu

Note that PI is an Incoming Assistant Professor of the Computer Science Department at UTEP.

About CS@UTEP

The University of Texas at El Paso (UTEP) is a doctoral, minority-serving, and research intensive institution with well over \$140 million in annual expenditures for research. UTEP is one of 141 R1 universities out of the nearly 4,000 accredited degree-granting institutions in the United States, placing it in the top 5% of all universities when it comes to research. UTEP is also one of 19 Hispanic-Serving Institutions to achieve R1 status.

The Computer Science Department at UTEP offers a PhD in Computer Science, a Master of Science in Computer Science, a Master of Science in Software Engineering (with a special track in Secure Cyber Systems), and a Master of Science in Data and Information Sciences. The MS and PhD programs emphasize active student involvement in research groups. Our goal is to produce graduates who possess an education of sufficient breadth and depth to qualify them as leaders in both the industrial and academic environments of Computer Science.