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Mohammad Raihan Uddin

Personal Statement

An enthusiastic researcher and dedicated teaching assistant with a robust background in computer engineering. My research focused on federated learning, artificial intelligence, quantum learning, privacy & security, and wireless communication, which has led to several conference publications and ongoing projects. My experience is further enriched by multiple leadership roles within student associations and Model United Nations events, reflecting my commitment to academic excellence and collaborative innovation.

Education

- Jan 2024 – Present **M.S. in Computer Engineering**, *The University of Alabama in Huntsville*, Huntsville, AL, USA
- Jan 2013 – Feb 2017 **B.Sc. in Electronics & Telecommunication Engineering**, *Daffodil International University*, Dhaka, Bangladesh

Experience

- Jan 2024 – Present **Graduate Teaching Assistant**, *ECE, The University of Alabama in Huntsville*, Huntsville, AL, USA
- Assist in delivering course content and labs for:
 - Introduction to Software Engineering
 - Introduction to Computer Networks
 - Electric Circuits & Electronics Design Lab
 - Electric Circuits system
 - Operating System Lab
 - Introduction to Computer Programming for Engineering Lab
 - Support and mentor students, facilitate lab sessions, and contribute to curriculum development.
- Jan 2024 – Present **Researcher**, *Networking, Intelligence and Security Lab (NIS Lab)*
- Engage in active research projects in areas including machine learning, AI, IoT, and cybersecurity.

Research Interests

Federated Learning, Artificial Intelligence, Quantum Learning, Privacy & Security, Wireless Communication

Publications

- Accepted ○ **M. R. Uddin**, R. Rahman, D. C. Nguyen, (2025). *False Data Injection Attack Detection in Edge-based Smart Metering Networks with Federated Learning*. IEEE Consumer Communications & Networking Conference (CCNC 2025).

- Under Review
- **M. R. Uddin**, D. C. Nguyen, (2024). *Unmanned Aerial Vehicles (UAVs): A State of the Art Survey*. IEEE Communications Surveys & Tutorials.
 - M. B. Zami, **M. R. Uddin**, D. C. Nguyen, (2025). *Secure UAV-assisted Federated Learning: A Digital Twin-Driven Approach with Zero-Knowledge Proofs*. IEEE Internet of Things Journal.
 - Quy, V. K., Shaon, S., **M. R. Uddin**, Quy, N. M., D. C. Nguyen, (2025). *Aerial Intelligent Reflecting Surface (A-IRS) for Wireless Power Transfer in 6G Networks: Security Challenges and Solutions*. IEEE Network Magazine.
 - Shaon, S., **M. R. Uddin**, P. Atit, D. C. Nguyen, (2025). *Sum-Rate Maximization in NOMA-Assisted Wireless Networks: A Quantum-inspired Optimization Approach*. IEEE International Conference on Quantum Computing & Engineering (QCE)).
 - **M. R. Uddin**, R. Rahman, D. C. Nguyen, (2025). *Synergy Quantum Federated Learning and Security*. IEEE International Conference on Quantum Computing & Engineering (QCE)).
 - **M. R. Uddin**, D. C. Nguyen, (2025). *Quantum Federated Learning: A Comprehensive Survey*. IEEE Communications Surveys & Tutorials.
 - R. Rahman, A. Pokharel, **M. R. Uddin**, D. C. Nguyen, (2025). *SimQFL: A Quantum Federated Learning Simulator with Real-Time Visualization*. IEEE Transactions on Quantum Engineering.
- Published
- Quy, V. K., Quy, N. M., Hoai, T. T., Shaon, S., **Uddin, M. R.**, D. C. Nguyen, T., & Chatzimisios, P (2024). *From Federated Learning to Quantum Federated Learning for Space-Air-Ground Integrated Networks*. IEEE Conference on Standards for Communications and Networking (CSCN 2024).
 - M. Arefin, **M. Uddin**, N. A. Evan, M. R. Alam, et al., "Enterprise network: Security enhancement and policy management using next-generation firewall (NGFW)," in *Computer Networks, Big Data and IoT*, Springer, 2021, pp. 753–769.
 - **M. Uddin**, N. A. Evan, M. R. Alam, M. Arefin, et al., "Analysis of generic routing encapsulation (GRE) over IPSec VPN tunneling in IPv6 network," in *International Conference on Ubiquitous Communications and Network Computing*, Springer, 2021, pp. 3–15.
 - S. K. Dey, **R. Uddin**, M. Rahman, et al., "Performance analysis of SDN-based intrusion detection model with feature selection approach," in *Proceedings of international joint conference on computational intelligence*, Springer, 2020, pp. 483–494.
 - N. F. Firoz, M. Arefin, **M. Uddin**, et al., "Performance optimization of layered signature based intrusion detection system using Snort," in *International Conference on Cyber Security and Computer Science*, Springer, 2020, pp. 14–27.
 - **Uddin, Md Raihan**, K. M. Kabir, and M. T. Arefin, "Artificial neural network inducement for enhancement of cloud computing security," in *2019 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT)*, IEEE, 2019, pp. 1–6.
 - S. K. Dey, M. M. Rahman, and **Uddin, Md Raihan**, "Detection of flow based anomaly in OpenFlow controller: Machine learning approach in software defined networking," in *2018 4th International Conference on Electrical Engineering and Information & Communication Technology (iCEEICT)*, IEEE, 2018, pp. 416–421.
 - S. K. Dey, **Uddin, Md Raihan**, K. M. Kabir, and M. M. Rahman, "Enhancing the security of cloud computing: Genetic algorithm and QR code approach," in *2017 4th International Conference on Advances in Electrical Engineering (ICAEE)*, IEEE, 2017, pp. 181–186.
 - **Uddin, Md Raihan**, K. M. Kabir, and M. M. Hasan, "Data security through image processing by Blowfish algorithm, genetic algorithm and LSB," *Foundation of Computer Science*, vol. 148, 2016.

Skills

Programming Python, MATLAB, C

Frameworks PyTorch, NumPy, Pandas, TensorFlow, Scikit-Learn, Keras, Google Infrastructure, Tensor Parallelism

Technical	Cisco, RedHat, AWS, Docker, Kubernetes, MySQL, LaTeX
Soft Skills	Leadership, Strategic Planning, Communication, Negotiation, Public Speaking, Diplomacy
Other	Linux Systems, Academic Research, Teaching, Training, Consultation; Fluent in English & Bengali

Certifications

- 2016 Cisco Certified Network Administration
- 2019 Red Hat Certified System Administrator (RHCSA)
- 2019 Red Hat Certified Engineer (RHCE)
- 2020 Docker Certified Associate (DCA)
- 2021 AWS Certified Solutions Architect Associate
- 2022 Certified Kubernetes Administrator (CKA)

Professional Membership

- Secretary, UAH Graduate Student Association
- President, UAH Bangladeshi Student Association
- Graduate Student Member, IEEE (including IEEE Communication and Computer Societies)
- Student Member, Internet Society
- President, House of Youth Dialogue-HYD
- Life Member, Institute of Engineers Bangladesh (IEB)

Extracurricular Activities

- Head Organizer, TEDxUA Huntsville 2025
- Convener, House of Youth Dialogue Model United Nations 2023
- Secretary General, Bangabandhu Model United Nations 2023
- Convener, House of Youth Dialogue General Assembly 2023
- Deputy Secretary General, Bangabandhu Model United Nations 2022
- Convener, Sustainable Development Goals Model United Nations 2022
- Director General, House of Youth Dialogue Model United Nations 2021
- Convener, House of Youth Dialogue Entrepreneurs' Hive 2021
- Convener, League of Regime Diplomacy Model United Nations 2020 (LORDMUN IV)
- Convener, House of Youth Dialogue Model United Nations 2019; USG, Sustainable Development Goals Model United Nations 2019
- Co-Founder, "Toru Chaya" (organization for Rural Child)
- Theater Stage Performer, Nagorik Nattaya Samproday; Cycling; Acoustic Guitarist; Photography; YouTube Content Creator

References

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