RAIYAN RAHMAN

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RESEARCH INTERESTS

Quantum Network, Network Tomography, Continuous Variable Quantum Information.

EDUCATION

NC State University *(Aug 2025 - May 2030)*
PhD in Computer Science
Advisor: Prof. Ruozhou Yu

North South University *(Sep 2019 - Jun 2023)*
B.S. in Computer Science and Engineering
Advisor: Prof. Mahdy Rahman Chowdhury

PUBLICATIONS

Published/Preprints

1. **Raiyan Rahman**, Md Shawmoon Azad, Mohammed Rakibul Hasan, Syed Emad Uddin Shubha, M.R.C. Mahdy(2025). *"Enhancing the security of image transmission in Quantum era: A Chaos-Assisted QKD Approach using entanglement."* **IET Quantum Communication**[DOI].
2. Mohammed Tawshif Hossain*, Adnan Sami Sarker*, Arnab Chowdhury*, Rajesh Mitra, **Raiyan Rahman**, M.R.C. Mahdy, *"Decoding Memory with Explainable AI: A Large-Scale EEG-Based Machine Learning Study of Encoding vs. Retrieval"*. **Neuroscience Informatics**[DOI].
3. **Raiyan Rahman**, Abul Kalam al Azad, Sifat Momen (2025), *"MGFormer: A Lightweight Multi-Granular Transformer for Subject-Independent Alzheimer's Classification"*. [**Biomedical Signal Processing and Control**][DOI].
4. Shawmoon Azad, Shadman Sakib Khan, Rezwan Hossain, **Raiyan Rahman**, Sifat Momen, *"Predictive Modeling of Consumer Purchase Behavior on Social Media: Integrating Theory of Planned Behavior and Machine Learning for Actionable Insights."* **PLoS ONE** [DOI].
5. Hasibur Rahman*, Parthiv Debnath*, Md. Nafis Jawad*, **Raiyan Rahman**, M.R.C. Mahdy, *"Quantum-Enhanced Chaotic Encryption on FPGA: A Path to Physical-Layer Post-Quantum Security"*. **SN Computer Science**.

Asterisk (*) indicates students supervised by me.

WORK EXPERIENCE

Research Assistant Feb 2024 - June 2025
Supervisors: Dr. Abul Kalam Al Azad, and Dr. Sifat Momen NSU

· We used computational models of neuronal motifs to study burst and spike dynamics through simulations of EEG data.

TEACHING EXPERIENCE & ACADEMIC SERVICES

Reviewer: BSPC.
Teaching Assistant: MAT361 (NSU Fall'22), CSC440 (NCSU Fall'25, Spring'26).

PROJECTS

1. **ItihashQA**: An Open Source Conversational Question Answering System applied in the context of Bangladeshi History. This was the first ever Retrieval Augmented Generation model based on Bengali data. [Github]

SKILLS

Quantum Tools	Qiskit, Strawberryfields
Programming Languages	Python, C++
Statistics	SPSS, Amos
Others	PyTorch, Matlab

REFEREES

- **Dr. Mahdy Rahman Chowdhury**, Professor,
  Department of Computer Science and Engineering, North South University,
  Email: mahdy.chowdhury@northsouth.edu
- **Dr. Abul Kalam Al Azad**, Associate Professor,
  Department of Mathematics and Physics, North South University,
  Email: abul.azad03@northsouth.edu
- **Dr. Sifat Momen**, Professor,
  Department of Computer Science and Engineering, North South University,
  Email: sifat.momen@northsouth.edu