Hasan Iqbal

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Education

Ph.D. Candidate, Computer Science and Engineering 2018 - Present
University of Connecticut (UConn), Storrs, CT
Dissertation: High-dimensional Quantum Key Distribution: New Protocolos and Analysis.
Advisor: Dr. Walter O. Krawec.

MS, Computer Science 2015 - 2017
University of Illinois at Chicago (UIC), Chicago, IL

BS, Information Technology 2009 - 2013
IIT, University of Dhaka, Dhaka, Bangladesh

Experience

Research Assistant, UConn 2018 - Present

Development and analysis of new high-dimensional quantum key distribution (HD-QKD) protocols with a focus on resource minimization to help in practical implementations.

Teaching Assistant, UConn 2018 - Present

Cybersecurity: Designed assignments, conducted and graded labs, and held office hours.
Programming Languages: Graded homework, exams, and held office hours.

Teaching Assistant, UIC 2015 - 2017

C/C++, Matlab: Conducted labs, reinforced lessons, and held office hours for a large student population. Received 4.3/5 in student ratings.

Publications

1. Analysis of a High-Dimensional Extended B92 Protocol. H. Iqbal and W.O. Krawec. Quantum Information Processing 20 (10) 344, 2021.
2. High-Dimensional Semi-Quantum Cryptography. H. Iqbal and W.O. Krawec. IEEE Transactions on Quantum Engineering, vol. 1, pp. 1-17, 2020.
3. Semi-quantum Cryptography. H. Iqbal and W.O. Krawec. Quantum Information Processing 19 (3) 97, 2020.
4. From Classical to Semi-Quantum Secure Communication. A. Gagliano, W.O. Krawec, and H. Iqbal. IEEE ISIT 2019.

Preprints

1. New Security Proof of a Restricted High-Dimensional QKD Protocol. H. Iqbal and W.O. Krawec. arXiv:2307.09560.

Awards

Conference participation award, Graduate School, UConn	July 2023
Summer dissertation fellowship, Graduate School, UConn	April 2023
Synchrony Financial fellowship, CSE, UConn	2021 - 2022, 2023
Pre-doctoral fellowship award, CSE, UConn	May 2023/22/21/20

Presentations and Posters

1. New Security Proof of HD-3-State-BB84 Protocol, QCrypt poster, UMaryland. August 2023
2. HD-B92 Protocol, SOE poster competition, UConn. April 2021
3. HD-Semi-quantum Key Distribution, CSE Security Seminar, UConn. November 2020
4. Fully Device-independent QKD, Quantum Network Seminar, UMass/CQN. July 2020
5. HD-Semi-quantum Key Distribution, SOE poster competition, UConn. March 2020

References

Dr. Walter O. Krawec
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Dr. Bing Wang
Professor, Computer Science and Engineering, University of Connecticut
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Dr. Alexander Russell
Professor, Computer Science and Engineering, University of Connecticut
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