Khandaker Akramul Haque

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Education

Texas A&M University **2023 - Present**
Ph.D. in Electrical and Computer Engineering on going under the supervision of Dr. Katherine Davis *CGPA 4.00/4.00*

Bangladesh University of Engineering and Technology **2015 – 2020**
Master of Science in Electrical and Electronic Engineering *CGPA 4.00/4.00*

Bangladesh University of Engineering and Technology **2010 – 2015**
Bachelor of Science in Electrical and Electronic Engineering *CGPA 3.83/4.00*

Appointments

Texas A&M University (TAMU) **January 2023 – Present**
Graduate Research Assistant *USA*

- "Security-Oriented Cyber-Physical Intrusion Response and Recovery". The work is funded by the department of energy (DOE) of the USA under award DE-CR0000018.

Dhaka Power Distribution Company Limited (DPDC) **June 2021 – January 2023**
Assistant Engineer (Power Distribution Company) *Bangladesh*

- To construct and coordinate operation of facilities for transmitting power from distribution points to consumers.
- To propose cost reduction initiatives while maintaining high efficiency of electrical distribution systems.
- To make complex electrical computations in order to determine type and arrangement of circuits and size, type and number of pieces of equipment, such as transformers, circuit breakers, switches and lightning arresters.

North-West Power Generation Company Limited (NWPGCL) **August 2017 – June 2021**
Assistant Engineer (Power Generation Company) *Bangladesh*

- To monitor, inspect and operate the combined cycle power plant and its auxiliary system.
- To communicate with National Load Dispatch Centre (National Grid) while ensuring power plant and grid safety.
- To monitor, inspect and operate steam turbine and its auxiliary components.
- To monitor, inspect and operate heat recovery steam generator and its auxiliary components.

Stamford University Bangladesh **February 2016 – July 2017**
Lecturer, Department of Electrical and Electronic Engineering *Bangladesh*

- Courses Taught: Semiconductor Device Theory, Power Electronics, Opto-electronics, Power System.
- Laboratory Simulation Conducted: Power Electronics, VLSI, Power System and Control System.

Professional Membership

- IEEE (USA)
- IET (UK)
- CIGRE (France)

Research Interest

- Cybersecurity
- Machine Learning
- Deep Learning
- Reinforcement Learning
- Power Electronics
- Device Physics

Research Publication (Visit My Google Scholar | Researchgate Pages)

Peer-Reviewed Journal

1. **K. A. Haque**, and M. Z. Baten, "Correlation between performance characteristics of indoor photovoltaic devices and DC-to-DC up-converters for low-power electronic applications," IET Circuits, Devices & Systems, 2021
   DOI: https://doi.org/10.1049/cds2.12069
2. A. Saha, **K. A. Haque**, and M. Z. Baten, "Performance evaluation of singlejunction indoor photovoltaic devices for different absorber bandgaps under spectrally varying white light-emitting diodes," IEEE Journal of Photovoltaics, 2020
   DOI: https://doi.org/10.1109/JPHOTOV.2019.2959938

3. **K. A. Haque** and M. Z. Baten, "On the prospect of CZTSSe-based thin film solar cells for indoor photovoltaic applications: A simulation study," AIP Advances, 2019
DOI: https://doi.org/10.1063/1.5099274

Conference Presentation

1. Logan Blakely, Georgios Fragkos, Shamina Hossain-McKenzie, Christopher Goes, **Haque, K. A.**, Adam, Summers, and Katherine Davis. " A Comparison Study of Feature Extraction and Data Fusion Techniques for Improving Cyber-Physical Situational Awareness" In 2024 IEEE/PES Transmission and Distribution Conference and Exposition (T&D) (pp. 1-5). IEEE
DOI: https://doi.org/10.1109/TD47997.2024.10556209
2. Sun, S., Hossain-McKenzie, S., Al Homoud, L., **Haque, K. A.**, Goulart, A., & Davis, K. (2024, February). An AI-based Approach for Scalable Cyber-Physical Optimal Response in Power Systems. In 2024 IEEE Texas Power and Energy Conference (TPEC) (pp. 1-6). IEEE.
DOI: https://doi.org/10.1109/TPEC60005.2024.10472265
3. **Haque, K. A.**, Davis, K., Blakely, L., Hossain-McKenzie, S., Fragkos, G., and Goes, C. (2024, February). Multimodal Learning in Cyber-Physical System: A Deep Dive with WSCC 9-Bus System. In 2024 IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT) (pp. 1-5). IEEE.
DOI: https://doi.org/10.1109/ISGT59692.2024.10454149
4. **K. A. Haque** and M. Z. Baten, "Design optimization of self-driven boost converter for CZTSSe indoor photovoltaic device based low-power electronic," in 2019 IEEE International Conference on Power, Electrical, and Electronics and Industrial Applications (PEEIACON)
DOI: https://doi.org/10.1109/PEEIACON48840.2019.9071930

Research Experience

Texas A&M University (USA)

- Security-Oriented Cyber-Physical Intrusion Response and Recovery Engine for Next Generation Energy Management System funded by the department of energy (DOE) of the USA under award DE-CR0000018.
- Scalable Reinforcement Learning Environment: Funded by the department of energy (DOE) of the USA under award DE-CR0000018.

Sandia National Laboratories (USA)

- griDNA: Multilevel Cyber-Physical Sensor Data-Fusion for Situational Awareness into a Decentralized Electric Grid. This work is supported by the Sandia Laboratory Directed Research and Development Project # 229434
- The incorporation of secure data storage utilizing both IPFS blockchain and Multichain blockchain technologies is aimed at fortifying the existing security measures. This integration introduces an additional stratum of protection, thereby enhancing the overall security posture of the system. This work is supported by the Sandia Laboratory Directed Research and Development Project # 229434.

Bangladesh University of Engineering and Technology (Bangladesh)

- Modeling of CZTSSe based thin film photovoltaic device for indoor lighting condition
- Modeling of the correlation between performance characteristics of indoor photovoltaic devices and DC-to-DC up-converter for low power electronic applications

Synergetic Activity

- Worked as technical co-chair for the Texas Power & Energy Conference (TPEC) 2024

Reviewer Service

- Journal of Computational Electronics

Technical Skills

Programming Languages: Python, JavaScript, Matlab, R, C, C++, C#, SQL, NoSQL, Solidity
Developer Tools: VS, VS Code, Anaconda, PyCharm, AWS (EC2, S3, RDS, Redshift)
Technologies/Frameworks: React, Node, Express, React Native, Flutter, Tensorflow, PyTorch, Truffle
DevOps : Docker, Kubernetes, Jenkins
Image Editing: Photoshop, Illustrator
Video Editing: Premiere Pro, After Effects