**SHEIKH RABIUL ISLAM**

**Assistant Professor, Department of Computing Sciences, University of Hartford**

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Directory: <https://www.hartford.edu/directory/arts-science/islam-rabiul-sheikh.aspx>

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| Education |  |
| * **Tennessee Tech University**, TN, USA   **Ph.D.** in Engineering (Computer Science concentration)  Dissertation**:** Domain Knowledge Aided Explainable Artificial Intelligence.  Advisors: William Eberle, Sheikh K. Ghafoor  **MS** in Computer Science.   * **Islamic University of Technology**, Bangladesh   **BSc** in Computer Science*.* | 2015 -  May 2020  2015 - 2018  2007 - 2010 |
| RESEARCH Interests  * Explainable Artificial Intelligence * Fair ML/AI * Data Mining and Big Data Analytics * Cyber Security * Anomaly or Fraud Detection |  |
| research Experience |  |
| * **Assistant Professor**, University of Hartford, USA   Current research interests include Explainable Artificial Intelligence (XAI); fair ML/AI, fraud/anomaly detection; cyber-attack prediction, detection, and mitigation; | August 2020  - Present |
| * **Visiting International Researcher**, Tennessee Tech University, USA   Wrote a survey paper on Explainable Artificial Intelligence approaches with demonstrations, and collaborated on a grant proposal—NSF Program on Fairness in Artificial Intelligence in Collaboration with Amazon (FAI). | June 2020 –August 2020 |
| * **Graduate Research Assistant**, Tennessee Tech University, USA   Worked on Explainable Artificial Intelligence (XAI) with a focus on uncovering and incorporating useful domain knowledge from an application domain (e.g., Finance, Security) that will enhance the explainability of AI-based complex models. | 2018 – May 2020 |
| * **Advanced Short-Term Research Intern**, Oak Ridge National Laboratory (ORNL), USA   Worked on an automated and generalized malware detection tool to avoid manual investigations of host logs and a reconfiguration of detector tool. | Summer 2018 |
| teaching and mentoring Experience |  |
| * **Assistant Professor**, University of Hartford, USA   Courses taught in Fall, 2020: Data Structures, Fundamental of Computing, Data Mining, and Information Assurance and Cryptography.  Scheduled to teach in Spring, 2021: Data Structures, Computer Networks, and Programming Foundations. | 2020 |
| * **Graduate Research/Teaching Assistant**, Tennessee Tech University, USA   Instructed Data Structures and Algorithms course  Instructed, graded, and tutored following course labs:  Data Structures and Algorithms Lab  Introduction to Problem Solving - Computer Programming Lab  Database Management Systems lab | 2015 - 2019 |
| * **Volunteer***,* Tennessee Tech University*, USA*   Worked as a volunteer and substitute mentor in summer boot camp—Governor’s School for Emerging Technologies to stimulate STEM education in high school students. | 2017 |
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| awards and Fellowships |  |
| * Student Travel Award, ACM SIGKDD, 2019 * GRA from College of Engineering grants recognizing Carnegie classification * GRA from Cybersecurity Education, Research & Outreach Center (CEROC), Tennessee Tech * Ivanhoe Foundation Fellowship | 20192019 - 20202018 - 20192017 |
| GRANTS |  |
| * University of Hartford: 2020-21 Grants to Promote Diversity, Equity, and Inclusion within the Classroom; Accepted Proposal: Introducing Fairness Module in the Data Mining Course; Role: PI; Amount: $2000 * NSF Proposal: CRII: III: Domain Knowledge Aided Explainable Artificial Intelligence Decision Framework; Role: PI; Amount: $170,638 (**under review**) | 2020 |
| publications |  |
| 1. **Sheikh Rabiul Islam** and William Eberle, “Implications of Combining Domain Knowledge in Explainable Artificial Intelligence”, **AAAI-MAKE 2021.** | 2021 |
| 1. **Sheikh Rabiul Islam,** William Eberle, Sheikh K. Ghafoor, Ambareen Siraj, and Mike Rogers, “Domain Knowledge Aided Explainable Artificial Intelligence for Intrusion Detection and Response ”, *AAAI-MAKE* 2020. | 2020 |
| 1. **Sheikh Rabiul Islam,** William Eberle, Sheikh K. Ghafoor, “ Towards Quantification of Explainability in Explainable Artificial Intelligence Methods”, *FLAIRS-33.* | 2020 |
| 1. **Sheikh Rabiul Islam,** William Eberle, Sid Bundy, and Sheikh Khaled Ghafoor, “Infusing domain knowledge in AI-based "black box" models for better explainability with application in bankruptcy prediction*”*, *25th ACM SIGKDD, Workshop: Anomaly Detection in Finance, 2019*. | 2019 |
| 1. Qian Chen, **Sheikh Rabiul Islam**, Henry Haswell, and Robert A. Bridges, Automated Ransomware Behavior Analysis: Pattern Extraction and Early Detection*, The 2nd International Conference on Science of Cyber Security (SciSec)*, 2019. | 2019 |
| 1. **Sheikh Rabiul Islam**, Sheikh Khaled Ghafoor, and William Eberle, “Mining Illegal Insider Trading of Stocks: A Proactive Approach*”*, *IEEE Big Data*, 2018. | 2018 |
| 1. Md Mosharaf Hossain, Thomas M. Hines, **Sheikh Rabiul Islam**, Sheikh K. Ghafoor, and Ramakrishnan Kannan, “A Flexible-blocking Based Approach for Performance Tuning of Matrix Multiplication Routines for Large Matrices with Edge Cases”, *The 2nd Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD), IEEE Big Data,* 2018. | 2018 |
| 1. **Sheikh Rabiul Islam**, William Eberle, and Sheikh Khaled Ghafoor, “Credit Default Mining Using Combined Machine Learning and Heuristic Approach*”*, *14th Int. Conference on Data Science (ICDATA’18),* 2018. | 2018 |
| 1. **Sheikh Rabiul Islam**, William Eberle, and Sheikh Khaled Ghafoor, “Mining Bad Credit Card Accounts from OLAP and OLTP*”, ACM International Conference on Compute and Data Analysis (ICCDA'17)*, 2017. | 2017 |
| 1. Tanzeem Bin Noor, Md Rounok Salehin, **Sheikh Rabiul Islam**, “A clustering scheme for peer-to-peer file searching in mobile ad hoc networks”, *International Journal of Advanced Research in Computer and Communication Engineering,* 2012. | 2012 |
| Posters and abstracts |  |
| 1. **Sheikh Rabiul Islam,** William Eberle, Sid Bundy, and Sheikh Khaled Ghafoor, “Infusing domain knowledge in AI-based "black box" models for better explainability with application in bankruptcy prediction*”*, *25th ACM SIGKDD, Workshop: Anomaly Detection in Finance, 2019*. | 2019 |
| 1. Tigstu Dullo, Sudershan Gangrade, Ryan Marshall, **Sheikh R. Islam**, Sheikh Ghafoor, ShihChieh Kao, and Alfred J. Kalyanapu, “The Vulnerability of Critical Energy Infrastructures to Climate Change induced Flooding: A Case Study for the Conasauga River basin”, *27th Tennessee Water Resources Symposium,* 2018*.* | 2018 |
| 1. AJ Kalyanapu, TT Dullo, S Gangrade, SC Kao, R Marshall, **SR Islam**, and SK Ghafoor, “Hurricane Harvey Riverine Flooding: Part 1-Reconstruction of Hurricane Harvey Flooding for Harris County, TX using a GPU-accelerated 2D flood model for post-flood hazard analysis”, *American Geophysical Union (AGU) Fall Meeting,* 2017. | 2017 |
| 1. Tigstu TSIGE Dullo, Sudershan Gangrade, Ryan Marshall, **Sheikh R Islam**, Sheikh K Ghafoor, Shih-Chieh Kao, and Alfred J Kalyanapu, “A large-scale simulation of climate change effects on flood regime-A case study for the Alabama-Coosa-Tallapoosa River Basin”, *American Geophysical Union (AGU) Fall Meeting,* 2017. | 2017 |
| 1. TT Dullo, AJ Kalyanapu, S Gangrade, R Marshall, **SR Islam**, SK Ghafoor, SC Kao, and BL Preston, “Development of an Integrated DHSVM-Flood2D-GPU modeling framework - A Case Study for the Alabama-Coosa-Tallapoosa River Basin”, *American Geophysical Union (AGU) Fall Meeting,*2016. | 2016 |
| services |  |
| * **Program Committee Member,** FLAIRS 34 – Neural Networks and Data Mining Special Track | 2021 |
| * **Student Volunteer**, 25th ACM SIGKDD Conference | 2019 |
| * **Ad hoc Reviewer,** Expert Systems with Applications - Journal - Elsevier | 2019-2020 |
| * **Ad hoc Reviewer,** Journal of Decision Systems | 2019 |
| * **Ad hoc Reviewer,** International Journal of Networking and Virtual Organizations | 2020 |
| * **Ad hoc** **Reviewer**, International Conference on Computer Science and Application Engineering (CSAE, 2019) | 2019 |
| * **President**, Computer Science Graduate Students Club | 2018 - 2019 |
| * **Member**, Computer Science Student Advisory Council | 2018 - 2019 |
| * **Member**, IEEE | 2018 - 2019 |
| * **Member**, AAAI | 2020 |
| * **Participant**, Keep Putnam County Beautiful – Clean Commission | 2018 |
| * **Volunteer and Substitute Mentor**, The Governor’s School for Emerging Technologies | 2017 |
| * **Volunteer**, Integrating Parallel and Distributed Computing in Introductory Programming Classes (iPDC) | 2016 |
| Technical skills |  |
| * Programming: Python, C++, Java, PHP, MPI, OpenMP, CUDA, Javascript, and R. * Data Science: Proficient in Scikit-learn, NLTK, Pandas, and Flask; Familiar with Tensorflow, Keras, D3.js, Highchart, Matlab, and Weka. * Database: Oracle, MySql, PostgreSQL, and Sqlite3. * Certification & Training: * High-Performance Computing Workshop at ORNL * Oracle Database SQL Certified Expert (2013) * Red Hat Certified Engineer (RHCE) training course at Base Ltd |  |
| references |  |
| **William Eberle**  Professor, Department of Computer Science, Tennessee Tech University  1 William L Jones Dr, Cookeville, TN 38505  Phone: 931-372-3278, Email: [weberle@tntech.edu](mailto:weberle@tntech.edu)  **Sheikh K. Ghafoor**  Professor, Department of Computer Science, Tennessee Tech University  1 William L Jones Dr, Cookeville, TN 38505  Phone: 931-372-3687, Email: [sghafoor@tntech.edu](mailto:sghafoor@tntech.edu)  **Ambareen Siraj**  Professor, Department of Computer Science, Tennessee Tech University  1 William L Jones Dr, Cookeville, TN 38505  Phone: 931-372-3519, Email: [asiraj@tntech.edu](mailto:asiraj@tntech.edu) |  |