

Sajedul Talukder

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Google Scholar: <https://scholar.google.com>

RESEARCH INTERESTS

My current research interests span the areas of security, privacy and distributed systems empowered by artificial intelligence and privacy-enhancing technologies. I also investigate multifaceted challenges of disinformation, fraud, cyberattacks, and cyberabuse within online and geosocial networks, with a focus on leveraging differential privacy, deep learning and federated learning to address complex societal challenges. As director of the Security and Privacy Enhanced Machine Learning (SUPREME) Lab, I lead initiatives in creating privacy-centric secure systems and practical machine learning applications.

EDUCATION

Florida International University, Miami, FL

Ph.D. in Computer Science Apr 2019

- Dissertation: *Detection and Prevention of Abuse in Online Social Networks*
- Lab: *Cyber Security and Privacy Research Lab, FIU*
- Advisor: Bogdan Carbunar

M.S. in Computer Science Dec 2018

- *School of Computing and Information Sciences, FIU*

Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

B.S. in Computer Science and Engineering Jul 2014

- Thesis: *Security Issues and Protection Mechanisms of IP Mobility Protocols*

PROFESSIONAL EMPLOYMENT

Assistant Professor

Department of Computer Science, School of Computing, Southern Illinois University

Director: Security and Privacy Enhanced Machine Learning (SUPREME) Lab

Affiliated Centers:

Center for Intelligent, Distributed, Embedded Applications and Systems (IDEAS)

Center for Research and Education in AI and Cybersecurity (CARE-AI-C)

Aug 2021 – Current

Assistant Professor

Department of Math and Computer Science, Pennsylvania Western University

Director: Privacy Enhanced Security Lab (PENSLab)

Aug 2019 – Jul 2021

Graduate Assistant

School of Computing and Information Sciences, Florida International University

Lab: Cyber Security and Privacy Research Lab (CaSPR)

Aug 2014 – Apr 2019

GRANTS AND FUNDING

- **National Science Foundation (NSF)**

Role: PI. \$1.2 million (pending). Duration: 08/01/2024-07/31/2028

Title: SCH: Improving Health Outcomes for the Deaf and Hard of Hearing through Multimodal, AI Enabled, Wearable Recognition Systems.

- **U. S. Department of Energy (DOE)**

Role: PI. \$1 million (pending). Duration: 08/01/2024-10/31/2027 (**invited DOE proposal**)

Title: Zero Trust-Driven Malware Prevention Framework for Next-Generation Cyber Threats to U.S. Nuclear Plants.

- **Department of Defense (DOD)**
Role: PI. \$1 million (pending). Duration: 08/01/2024-07/31/2026
Title: Zero Trust Robotic Assisted Digital Twin for Secure and Resilient AI-Assisted Multi-Domain Operations at the Tactical Warfighting Edge.
- **National Science Foundation (NSF)**
Role: PI. \$871,848 (pending). Duration: 08/01/2024-07/31/2027
Title: Advancing Cybersecurity in the Age of Generative AI: Exploring the Potential and Challenges of Large Language Model (LLM)-based Chatbots in Cybersecurity Education.
- **National Science Foundation (NSF)**
Role: Sole PI. \$157,888 (current). Duration: 04/01/2022-03/31/2025
Title: CRII: SaTC: A Framework to Defend Against Sockpuppet Connection Requests in Social Networks. **(Two years of funding remaining, available to support 2 PhD students.)**
- **Illinois Manufacturing Excellence Center (IMEC)**
Role: co-PI. \$99,102. Duration: 6/1/2022-11/30/2022
Title: Testbed for Experimenting with Industrial IoT and Cybersecurity Integration in Small Manufacturing.
- Association for the Advancement of Artificial Intelligence (AAAI) Student Travel Grant. \$350. 2018
- FIU Graduate and Professional Student Committee Student Travel Grant \$500. 2018
- FIU School of Computing and Information Sciences Student Travel Grant \$500. 2018
- ACM SIGWEB Student Travel Grant \$500. 2017

HONORS AND AWARDS

- University-Level Early Career Faculty Excellence Award Nomination, Southern Illinois University, 2022
- Scholar of the Year Nomination, Pennsylvania Western University, 2020
- Best Paper Award, IEEE ASYU, 2021
- SCIS Best Graduate Student in Research, FIU School of Computing and Information Sciences, 2018
- Dissertation Year Fellowship, Florida International University Graduate School, 2018
- Dean's Merit List Award from Bangladesh University of Engineering and Technology (BUET), 2013 & 2014
- Honorable Mention in Undergraduate Thesis Poster Competition, Department of CSE, BUET, 2014
- Best Paper Award, ICEEICT, 2014
- EATL-Prothom Alo Apps Contest, Champion in Android Utilities Category, 2012
- President's Rover Scout Award for scouting activities and community services, 2009 – 2014
- Bangladesh Government Merit Scholarship, Secondary and Higher Secondary public exams (Top 1% among 2 million students), 2006 & 2008

TEACHING EXPERIENCE

Assistant Professor of Computer Science

Fall 2023, Southern Illinois University

Aug 2023 – Dec 2023

- **CS 409/CS 591: Ethical Hacking**
 - Principles of computer security and understand how various security attacks and countermeasures work. Hands-on experience in playing with security software and network systems, with the purpose of understanding real-world threats
- **CS 330/CS 491: Intro to the Design and Analysis of Algorithms**
 - Design, implementation, complexity and limitations of algorithms. Discussion on the motivation behind the study of algorithms, the methods used in the analysis of algorithms, and how to show algorithm correctness

Spring 2023, Southern Illinois University

Jan 2023 – May 2023

- **CS 330/CS 491: Intro to the Design and Analysis of Algorithms**
 - Design, implementation, complexity and limitations of algorithms. Discussion on the motivation behind the study of algorithms, the methods used in the analysis of algorithms, and how to show algorithm correctness

Fall 2022, Southern Illinois University

Aug 2022 – Dec 2022

■ **CS 409/CS 591: Ethical Hacking**

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Fall 2021, Southern Illinois University

Aug 2021 – Dec 2021

■ **CS 330/CS 491: Intro to the Design and Analysis of Algorithms**

- Design, implementation, complexity and limitations of algorithms. Discussion on the motivation behind the study of algorithms, the methods used in the analysis of algorithms, and how to show algorithm correctness

Assistant Professor of Computer Science

Spring 2021, Pennsylvania Western University

Jan 2021 – May 2021

■ **CSCI 480: Computer Science Seminar**

- Principles of computer science research. Reading and presenting current research literature, formulating research problems, conducting a literature search using both library and internet resources, and writing up the results of scientific inquiry. Additionally, social, ethical and legal issues in computing

■ **CSCI 385: Data Structures & Analysis of Algorithms**

- Design, implementation, complexity and limitations of algorithms. Discussion on the motivation behind the study of algorithms, the methods used in the analysis of algorithms, and how to show algorithm correctness

■ **CSCI 125: Introduction to Computer Science**

- Introduction to and preliminary investigation of the fundamental concepts of computer science. An overview of computer science sub-disciplines such as algorithms (problem solving), artificial intelligence, computer organization and architecture, languages, operating systems, networks, software engineering (programming concepts) and databases

Assistant Professor of Computer Science

Fall 2020, Pennsylvania Western University

Aug 2020 – Dec 2020

■ **CSCI 480: Computer Science Seminar**

- Principles of computer science research. Reading and presenting current research literature, formulating research problems, conducting a literature search using both library and internet resources, and writing up the results of scientific inquiry. Additionally, social, ethical and legal issues in computing

■ **CSCI 385: Data Structures & Analysis of Algorithms**

- Design, implementation, complexity and limitations of algorithms. Discussion on the motivation behind the study of algorithms, the methods used in the analysis of algorithms, and how to show algorithm correctness

■ **CSCI 125: Introduction to Computer Science**

- Introduction to and preliminary investigation of the fundamental concepts of computer science. An overview of computer science sub-disciplines such as algorithms (problem solving), artificial intelligence, computer organization and architecture, languages, operating systems, networks, software engineering (programming concepts) and databases

Assistant Professor of Computer Science

Spring 2020, Pennsylvania Western University

Jan 2020 – May 2020

■ CSCI 385: Data Structures & Analysis of Algorithms

- Design, implementation, complexity and limitations of algorithms. Discussion on the motivation behind the study of algorithms, the methods used in the analysis of algorithms, and how to show algorithm correctness

■ CSCI 277: Introduction to Cybersecurity

- Broad overview of the field of cybersecurity. Crosscutting concepts in Cybersecurity by looking into the field of software security, component security, connection security, system security, human security, organizational security and societal security

■ CSCI 104: Essentials of Computing I

- Interaction of computer hardware and software, application of microcomputers, the use of productivity software (word processing, spreadsheet management, file management, and presentation software), internet and electronic mail applications

Assistant Professor of Computer Science

Fall 2019, Pennsylvania Western University

Aug 2019 – Dec 2019

■ CSCI 312: Computer Architecture

- Structure and organization of modern computers, digital logic, sequential and combinational circuits, assembly language programming, basic machine organization, data representation, memory organization, fundamentals of input and output, and introduction to parallel architectures

■ CSCI 104: Essentials of Computing I

- Interaction of computer hardware and software, application of microcomputers, the use of productivity software (word processing, spreadsheet management, file management, and presentation software), internet and electronic mail applications

Graduate Teaching Assistant

School of Computing and Information Sciences, FIU

Aug 2014 – Dec 2015

■ Worked as a TA for the **Java Programming** course

- Prepared PowerPoint presentations, lesson plans, and programming projects for three classes of twenty students each
- Designed weekly quizzes, graded quizzes and lab reports, tracked the student progress using Blackboard
- Provided students with one-on-one tutoring and regular out of class assistance
- Tutored students with special needs, including those with learning disabilities or who had language disadvantages

■ Worked as a TA for the **Software Engineering** course

- Assisted professor with classroom instruction materials, exams, assignments and record keeping
- Collaborated with the professor at weekly meeting and actively contributed new ideas on teaching
- Improved student participation in the classroom through integration of creative role-playing exercises and peer review sessions

■ Worked as a TA for the **Algorithm Techniques** course

- Prepared and presented three lectures per week for three course sections using multimedia technologies such as PowerPoint, video clips, and Blackboard course website
- Developed and graded exams and quizzes that assess student mastery of subject matter

■ Worked as a TA for the **Computer Data Analysis** course

- Prepared lesson plans, and assignments and conducted the labs
- Evaluated homeworks, tests, and quizzes and held office hours to ensure students understood course concepts
- Consistently received positive teacher evaluations from students

■ Worked as a TA for the **Introduction to Microcomputers** course

- Conducted labs and graded student lab reports and quizzes using an auto-grader
- Held office hours to ensure students understood the labs and successfully balanced student work-load with teaching work-load

Summer RET Instructor

School of Computing and Information Sciences, FIU

Summer 2015, 2016, 2018

- Worked as an instructor for **NSF–DoD RET** program for K-12 STEM teachers
 - Prepared PowerPoint presentations, lesson plans, and assignments for twenty K-12 STEM teachers each year on summer from 2015-2018
 - Taught the fundamental concepts of Java programming (2018), algorithms (2017), data mining (2016) and web programming (2015)
 - Adopted variety of teaching methods to make learning fun and keep teachers of all ages engaged in the learning process
 - Successfully motivated six K-12 teachers to enroll in the masters degree program in FIU after their summer program

MENTORING EXPERIENCE

Southern Illinois University

SUPREME Lab, School of Computing

- **Doctoral Advisor**
 - Sai Mani Teja Puppala
 - Ismail Hossain
 - Ebrahim Maghsoudlou
 - Md. Jahangir Alam
 - Syed Mhamudul Hasan

- **Master's Thesis Advisor**

- Alaa M. Alotaibi
- Saika Zaman
- Ajit Shukla
- Pragna Katasani
- Fakhrul Alam

- **Undergraduate Research Advisor**

- Stephen Schulte

Pennsylvania Western University

PENSLab, Dept. of Mathematics and Computer Science

- **Undergraduate Advisor**

- Riley Vaughn
- Neil Noyes
- Osama Mohammed
- John Sorhannus
- Kaize Yi
- Anthony Criscione
- Alexander Lopez

NSF–DoD REU Site Mentor

School of Computing and Information Sciences, FIU

- Mentored five undergraduate students in research formulation, data collection and analysis to help them complete their summer REU program.
- Guided the students in preparation and presentation of their research findings.
 - Alexandria Morales
 - Ivia Alvarez, Krista Shuckerow
 - Frank Hu, Harold Simpson

Summer 2017

Summer 2016

Summer 2015

NSF–DoD RET Site Mentor

School of Computing and Information Sciences, FIU

- Mentored two K-12 STEM teachers to participate in authentic summer research experiences.
- Guided the teachers to translate their research experiences and new scientific knowledge into their classroom activities and curricula.
 - Christine Todd, Irina Vega

Summer 2016

TA Mentor

School of Computing and Information Sciences, FIU

- Mentored the TA of the undergraduate **Java Programming** course on how to conduct the lab sessions and evaluate the programming assignments.
- In addition to TA responsibilities, led and mentored weekly planning meetings, coordinated with the professor, and acted as a liaison between all teaching assistants and the professor for the **Computer Data Analysis** course.

Spring 2015

Fall 2015

OTHER WORK EXPERIENCE

Graduate Research Assistant

Cyber Security and Privacy Research Lab, FIU

Jan 2016 – Apr 2019

- *AbuSniff: Detection and defenses against abusive Facebook friends*
 - Designed and developed an **automated abuse detection system** for online social networks like Facebook by detecting whether the Facebook friend is a perceived stranger or abuser
 - Demonstrated various security & privacy vulnerabilities that may originate from friend abuse in Facebook (e.g., timeline abuse, newsfeed abuse, stranger abuse)
 - Performed analysis over crowdsourced user data and implemented **AbuSniff, a social network assistant** able to predict abusive Facebook friend using supervised learning and take personalized defensive action
 - Evaluated the system by conducting user studies on real Facebook users from **25 countries and 6 continents**
 - Presented research to both technical and non-technical audiences
- *FLock: Friend Lock for strangers and abusers to reduce social networking risks*
 - Designed a novel system to crack down on the stranger and abusive pending friends on Facebook
 - Analyzed the pending **friend acceptance behavior** of a number of Facebook users spanning different demographics, gender, age and education groups
 - Performed experiments and user studies to leverage new Facebook user interface in order to create a noticeable visual display that will encourage safer social networking behaviors
 - Developed **FLock**, a tool to automatically identify stranger and abusive pending friend with a minimal access to the common history between the user and the pending friend

Software Engineering Intern

Samsung R&D Institute Bangladesh (SRBD)

Oct 2013 – Jan 2014

- worked on the **Mobile Authentication and Security (MAS)** team to re-design some of the authentication user interfaces for the Samsung devices.
- Improved features for facial recognition technology for the authentication of Samsung devices.
- Implemented tools for static and dynamic code analysis for the deployment of Samsung KNOX products.

Software Engineering Intern

Ministry of Foreign Affairs, Bangladesh

Jan 2012 – Jan 2013

- Worked as a **team leader** in a group of 4 other interns to digitalize the Consular, Diplomatic Bag and Central Receipt Sections of the Ministry.
- Designed and implemented an automation software supporting SAML-based SSO services for the Ministry and tested the performance in real life environment.

SELECTED PUBLICATIONS

Dissertation/Theses

1. **[FIU ETD] Sajedul Talukder**, “Detection and Prevention of Abuse in Online Social Networks”, FIU Electronic Theses and Dissertations: 4026, Mar 2019.
2. **[BUET Thesis] Sajedul Talukder**, “Security Issues and Protection Mechanisms of IP Mobility Protocols”, Bangladesh University of Engineering and Technology (BUET), 2014.

Book and Book Chapters

1. **[Springer] Tauhidul Alam, Sajedul Talukder**, “Utilizing Blockchain for Safeguarding IoT-Based Robotic Networks from Spoofing Attacks”, Springer Nature, Switzerland, 2023.
2. **[Springer] Sajedul Talukder, Md Jahangir Alam, Ismail Hossain, Sai Puppala**, “Blockchain-Integrated Secure Framework for Enhanced E-Government Services”, Springer Nature, Switzerland, 2023.
3. **[Springer] Md Zihad Bin Jahangir, Ruksat Hossain, Riadul Islam, MD Nasim, Md Mahim Anjum Haque, Md Jahangir Alam, Sajedul Talukder**, “Introduction to Medical Imaging Informatics”, Springer Nature, Switzerland, 2023.
4. **[Springer] Angona Biswas, MD Nasim, Md Shahin Ali, Ismail Hossain, Md Azim Ullah, Sajedul Talukder**, “Active Learning on Medical Image”, Springer Nature, Switzerland, 2023.
5. **[Springer] Angona Biswas, MD Nasim, Al Imran, Anika Tabassum Sejuty, Fabliha Fairouz, Sai Puppala, Sajedul Talukder**, “Generative Adversarial Networks for Data Augmentation”, Springer Nature, Switzerland, 2023.
6. **[Springer] Shuvra Sarker, Angona Biswas, MD Nasim, Md Shahin Ali, Sai Puppala, Sajedul Talukder**, “Case Studies on X-Ray Imaging, MRI and Nuclear Imaging”, Springer Nature, Switzerland, 2023.
7. **[Springer] Tasmia Tahmida Jidney, Angona Biswas, MD Nasim, Ismail Hossain, Md Jahangir Alam, Sajedul Talukder, Mofazzal Hossain, Md Azim Ullah**, “AutoML Systems For Medical Imaging”, Springer Nature, Switzerland, 2023.
8. **[Springer] S. K. M Shadikul Islam, MD Nasim, Ismail Hossain, Md Azim Ullah, Kishor Datta Gupta, Sajedul Talukder, Md Monjur Hossain Bhuiyan**, “Introduction of Medical Imaging Modalities”, Springer Nature, Switzerland, 2023.
9. **[Springer] Mosabbir Bhuiyan, MD Nasim, Sarwar Saif, Kishor Datta Gupta, Md Jahangir Alam, Sajedul Talukder**, “Online learning for X-ray, CT or MRI”, Springer Nature, Switzerland, 2023.
10. **[USA] Ismail Hossain, Sai Puppala, Ahmed Imteaj, Sajedul Talukder**, “Predicting Diabetic Retinopathy using Federated Deep Learning”, USA, 2023. [Chapter accepted]
11. **[IOS-Press] Sajedul Talukder, Abdur Shahid, Bogdan Carbunar**, “AI-based Detection and Defenses Against Abusive Friend Attacks in Online Social Networks”, IOS-Press, USA, 2023.
12. **[IOS-Press] Abdur Shahid, Sajedul Talukder, Tasnimun Faika**, “Defending Against Personality Prediction Attack in Handwriting Recognition-based Systems Using a Local Differentially Private AI Framework”, IOS-Press, USA, 2023.
13. **[Springer] Abdur Shahid, Niki Pissinou, Sajedul Talukder**, “Protecting Location Privacy in Blockchain-based Mobile Internet of Things”, Springer Nature, Switzerland, 2022.
14. **[CRC Press] Sajedul Talukder**, “GPU-based Medical Image Segmentation: Brain MRI Analysis Using 3D Slicer”, CRC Press, Taylor & Francis Group, USA, 2021.

Refereed Journal Papers

1. **[ACM TALLIP]** Md Jahangir Alam, Sultan Ahmed, **Sajedul Talukder**, Ismail Hossain, “Addressing Identity Deception and Promoting Integrity: Leveraging AI and NLP for Bangla Text-Based Gender Identification”, ACM Transactions on Asian and Low Resources Language Information Processing, Dec 2023. [Under review]
2. **[IEEE TCSS]** **Sajedul Talukder**, Bogdan Carbutar, “FriendLock: Enhancing User Awareness and Defenses Against Sockpuppet Friend Invitations in Facebook”, IEEE Transactions on Computational Social Systems, Aug 2023. [Under review]
3. **[ACM TOPS]** **Sajedul Talukder**, Abdur Shahid, “Defending Against Personality Prediction Attack in Handwriting Recognition-based Systems Using a Local Differentially Private Machine Learning (ML) Framework”, ACM Transactions on Privacy and Security, May 2023. [Under review]
4. **[ANS Transactions]** **Sajedul Talukder**, Palash Kumar Bhowmik, Piyush Sabharwall, Syed Bahauddin Alam, “Developing an AI-Powered Zero-Trust Cybersecurity Framework for Malware Prevention in Nuclear Power Plants”, Transactions of the American Nuclear Society, Vol 129, No. 1, Nov 2023.
5. **[ANS Transactions]** Kishor Datta Gupta, **Sajedul Talukder**, Syed Bahauddin Alam, “Adversarial AI threats on digitization of Nuclear Power Plants”, Transactions of the American Nuclear Society, Vol 129, No. 1, Nov 2023.
6. **[IJAIA]** Md. Faruk Hossen, **Sajedul Talukder**, Refatul Fahad, “AiPsych: A Mobile Application-Based Artificial Psychiatrist for Predicting Mental Illness and Recovery Suggestions Among Students”, International Journal of Artificial Intelligence & Applications, Vol. 13, No. 2, Mar 2022.
7. **[IJAIA]** **Sajedul Talukder**, Md. Faruk Hossen, “CovFilter: a low-cost portable device for the prediction of COVID-19 for resource-constrained rural communities”, International Journal of Artificial Intelligence & Applications, Vol. 13, No. 2, Mar 2022.
8. **[Nature Scientific Reports]** Abu S. Shonchoy, Khandker S. Ishtiaq, **Sajedul Talukder**, Nasar U. Ahmed, Rajiv Chowdhury, “A novel index-based decision support toolkit for safe reopening following a generalized lockdown in low and middle-income countries”, Nature Scientific Reports, Vol 11, No. 14108, July 2021. **[Impact factor: 5.5]**
9. **[CHI Journals]** **Sajedul Talukder** and Bogdan Carbutar, “A Study of Friend Abuse Perception in Facebook”, ACM CHI Conference on Human Factors in Computing Systems, May 2021. **[Invited Journal, Top HCI Venue]**
10. **[ACM TSC]** **Sajedul Talukder** and Bogdan Carbutar, “A Study of Friend Abuse Perception in Facebook”, ACM Transactions on Social Computing, Vol. 3, Issue 4, No. 17, Sep 2020.
11. **[IJCIS]** **Sajedul Talukder**, Md. Iftekharul Islam Sakib, Zahidur Talukder, “Giving Up Privacy For Security: A Survey On Privacy Trade-off During Pandemic Emergency”, International Journal on Cryptography and Information Security, Vol. 10, No. 3, Sep 2020.
12. **[IJNSA]** **Sajedul Talukder** and Zahidur Talukder, “A Survey on Malware Detection and Analysis Tools”, International Journal of Network Security & Its Applications, Vol. 12, No. 2, Mar 2020.

Refereed Conference Papers

1. **[BDAB]** Md. Monirul Islam, Mostafizur Rahman and **Sajedul Talukder**, “A Blockchain-based Smart framework for Contractual Agriculture”, 5th International Conference on Big Data and Blockchain, Vancouver, Canada, 2024. [Under review]
2. **[ACM WebSci]** Sultan Ahmed, Md Jahangir Alam, **Sajedul Talukder**, Ismail Hossain, “Combating Identity Misrepresentation in Social Media through Bangla Text-Driven Gender Recognition”, 16th ACM Web Science Conference, Stuttgart, Germany, 2024. [Under review]
3. **[AAAI ICWSM]** Ismail Hossain, Sai Puppala, Md Jahangir Alam, **Sajedul Talukder**, “A Visual Approach to Tracking Emotional Sentiment Dynamics in Social Network Commentaries”, 18th International Conference on Web and Social Media, NY, USA, 2024. [Under review]

4. **[IEEE DSC]** Md Zarif Hossain, Ahmed Imteaj, Saika Zaman, Abdur R. Shahid, **Sajedul Talukder**, M. Hadi Amini, "FLID: Intrusion Attack and Defense Mechanism for Federated Learning Empowered Connected Autonomous Vehicles (CAVs) Application." IEEE Conference on Dependable and Secure Computing (DSC), Tampa, USA, 2023.
5. **[ACM ASONAM]** Md Jahangir Alam, Ismail Hossain, Sai Puppala, **Sajedul Talukder**, "Combating Identity Attacks in Online Social Networks: A Multi-Layered Framework Using Zero-Knowledge Proof and Permissioned Blockchain", IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, Turkey, 2023. **[Acceptance Rate = 14%]**
6. **[ACM ASONAM]** Ismail Hossain, Sai Puppala, Md Jahangir Alam, **Sajedul Talukder**, "Monitoring Dynamics of Emotional Sentiment in Social Network Commentaries", IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, Turkey, 2023. **[Acceptance Rate = 14%]**
7. **[ACM ASONAM]** Sultan Ahmed, Md Jahangir Alam, **Sajedul Talukder**, Ismail Hossain, "Towards Addressing Identity Deception in Social Media using Bangla Text-Based Gender Identification", IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, Turkey, 2023. **[Acceptance Rate = 14%]**
8. **[IEEE SSCI]** Sunzida Siddique, Rakib Hossain Rifat, **Sajedul Talukder**, Syed Bahauddin Alam, Kishor Datta Gupta, "Challenges and Opportunities of Computational Intelligence in Industrial Control System (ICS)", IEEE Symposium Series on Computational Intelligence, Mexico, 2023.
9. **[IEEE SMC]** Palash Kumar Bhowmik, Syed Bahauddin Alam, **Sajedul Talukder**, Piyush Sabharwall, "Nuclear-Integrated Energy Units: Advancing Cybersecurity for Resilient Energy Systems", IEEE International Conference on Systems, Man, and Cybernetic, USA, 2023.
10. **[IEEE ICAIC]** Sai Puppala, Ismail Hossain and **Sajedul Talukder**, "Machine Learning and Sentiment Analysis for Predicting Environmental Lead Toxicity in Children at the ZIP Code Level", 2nd IEEE International Conference on AI in Cybersecurity, Feb 2023.
11. **[IEEE ICAIC]** Ismail Hossain, Sai Puppala and **Sajedul Talukder**, "Collaborative Differentially Private Federated Learning Framework for the Prediction of Diabetic Retinopathy", 2nd IEEE International Conference on AI in Cybersecurity, Feb 2023.
12. **[IEEE ICMLANT]** Sai Puppala, Ismail Hossain and **Sajedul Talukder**, "Towards Federated Learning-based Contraband Detection within Airport Baggage X-Rays", 3rd International Conference on Machine Learning & Applied Network Technologies, Dec 2022.
13. **[ACM CCSC]** **Sajedul Talukder**, Ismail Hossain, Sai Puppala, "A Novel Hierarchical Federated Learning with Self-Regulated Decentralized Clustering", 38th ACM CCSC Eastern Conference, Oct 2022, Center Valley, PA.
14. **[ACM CCSC]** **Sajedul Talukder**, Sai Puppala, Ismail Hossain, "Federated Learning-based Contraband Detection within Airport Baggage X-Rays", 38th ACM CCSC Eastern Conference, Oct 2022, Center Valley, PA.
15. **[ACM CCSC]** **Sajedul Talukder**, Sai Puppala, Ismail Hossain, "Prediction of Childhood and Pregnancy Lead Poisoning Using Deep Learning", 38th ACM CCSC Eastern Conference, Oct 2022, Center Valley, PA.
16. **[ACM SAC]** **Sajedul Talukder**, Nestor Hernandez, Mozghan Azimpourkivi and Bogdan Carbutar, "User Awareness and Defenses Against Sockpuppet Friend Invitations in Facebook", ACM/SIGAPP Symposium on Applied Computing, Apr 2022. **[Acceptance Rate = 22%]**
17. **[IEEE SMARTGENCON]** **Sajedul Talukder** and Riley Vaughn, "A Template for Alternative Proof of Work for Cryptocurrencies", IEEE International Conference on Smart Generation Computing, Communication and Networking, Oct 2021.
18. **[IEEE ASYU]** Abdur Shahid and **Sajedul Talukder**, "Evaluating Machine Learning Models for Handwriting Recognition-based Systems under Local Differential Privacy", IEEE International Conference on Innovations in Intelligent Systems and Applications Conference, Oct 2021. **[Best Paper Award]**
19. **[ACM CCSC]** **Sajedul Talukder** and Neil Noyes, "Analyzing Brain Tumor MRI to Demonstrate GPU-based Medical Image Segmentation", 37th ACM CCSC Eastern Conference, Oct 2021.
20. **[IEEE ASYU]** Abdur Shahid and **Sajedul Talukder**, "A Study of Differentially Private Machine Learning in Healthcare", IEEE International Conference on Innovations in Intelligent Systems and Applications Conference, Oct 2021.

21. **[ACM CCSC] Sajedul Talukder** and Abdur Shahid, “Applying Local Differential Privacy in Handwriting Recognition-based Systems”, 37th ACM CCSC Eastern Conference, Oct 2021.
22. **[ACM CCSC] Sajedul Talukder** and Abdur Shahid, “Enhancing Alternative Proof of Work for Cryptocurrencies Using Machine Learning”, 37th ACM CCSC Eastern Conference, Oct 2021.
23. **[ACM CCSC]** Abdur Shahid and **Sajedul Talukder**, “Privacy-Preserving Activity Recognition from Sensor Data”, 37th ACM CCSC Eastern Conference, Oct 2021.
24. **[ACM CCSC]** Abdur Shahid and **Sajedul Talukder**, “Evaluation of Privacy-Preserving Logistic Regression and Naive Bayes Classifiers in Healthcare”, 37th ACM CCSC Eastern Conference, Oct 2021.
25. **[ACM CCSC] Sajedul Talukder**, “Towards Understanding Privacy Trade-off In An Epidemic”, 36th ACM CCSC Eastern Conference, Oct 2020.
26. **[GHC 2020]** Abu S. Shonchoy, Khandker S. Ishtiaq, **Sajedul Talukder**, Rajiv Chowdhury, Nasar U. Ahmed, “Large-Scale Reopening during COVID-19 Pandemic: An Index-based Decision Making for Resource-limited Countries”, The Global Health Conference of the Americas, Oct 2020.
27. **[ACM CCSC] Sajedul Talukder**, “Privacy and Security Vulnerabilities in Health Care Infrastructure Mobile Technology”, 36th ACM CCSC Eastern Conference, Oct 2020.
28. **[ACM CCSC]** Riley Vaughn and **Sajedul Talukder**, “A Template for Useful Proof of Work”, 36th ACM CCSC Eastern Conference, Oct 2020.
29. **[Semantic Scholar 2020] Sajedul Talukder**, “Tools and Techniques for Malware Detection and Analysis”, Feb 2020.
30. **[ACM CCSC] Sajedul Talukder**, “AbuSniff: An Automated Social Network Abuse Detection System”, 35th ACM CCSC Eastern Conference, Oct 2019, Moon, PA.
31. **[AAAI ICWSM] Sajedul Talukder** and Bogdan Carbutar, “AbuSniff: Automatic Detection and Defenses Against Abusive Facebook Friends”, Proceedings of the 12th International Conference on Web and Social Media, Jun 2018. **[Acceptance Rate = 16%]**
32. **[IEEE ICCTCEEC] Sajedul Talukder**, Md. Iftekharul Islam Sakib, Md. Faruk Hossen, Zahidur Rahim Talukder and Md. Shohrab Hossain, “Attacks and Defenses in Mobile IP: Modeling with Stochastic Game Petri Net”, IEEE International Conference on Current Trends in Computer, Electrical, Electronics and Communication, Sep 2017. **[Best Paper Award]**
33. **[IEEE ICCTCEEC] Sajedul Talukder**, Md. Iftekharul Islam Sakib, Zahidur Rahim Talukder, Upoma Das, Arnob Saha and Nur Sultan Nazar Bayev, “USenSewer: Ultrasonic Sensor and GSM-Arduino Based Automated Sewerage Management”, IEEE International Conference on Current Trends in Computer, Electrical, Electronics and Communication, Sep 2017.
34. **[ACM WEBSCI] Sajedul Talukder** and Bogdan Carbutar, “When Friend Becomes Abuser: Evidence of Friend Abuse in Facebook”, 9th ACM Conference on Web Science, Jun 2017, Troy, NY.
35. **[IEEE ICEEICT] Sajedul Talukder**, Md. Iftekharul Islam Sakib and Md. Mustafizur Rahman, “Digital Land Management System : A new initiative for Bangladesh”, 1st IEEE International Conference on Electrical Engineering and Information & Communication Technology, Apr 2014.
36. **[IEEE ICIEV] Sajedul Talukder**, Md. Iftekharul Islam Sakib and Md. Mustafizur Rahman, “Model for E-Government in Bangladesh: A Unique ID Based Approach”, 3rd IEEE International Conference on Informatics, Electronics & Vision, May 2014.

Workshops, Posters, and Technical Report

1. **[WMCHCI 2014] Sajedul Talukder**, Md. Iftekharul Islam Sakib, Md. Faruk Hossen and Md. Shohrab Hossain, “Security Issues and Protection Mechanisms of IP Mobility Protocols”, Workshop on Mobile Computing and Human Computer Interaction, Jan 2014, Dhaka, Bangladesh.
2. **[WECS 2013] Sajedul Talukder**, Md. Iftekharul Islam Sakib, Md. Faruk Hossen and Md. Shohrab Hossain, “Investigations of IP Mobility Protocols: A Petri Game Net Approach”, Workshop on Design and Implementation of Emerging Computing Systems, Sep 2013, Dhaka, Bangladesh.

3. **[FIU SCIS 2018] Sajedul Talukder**, Shalisha Witherspoon, Kanishk Srivastava and Ryan Thompson, “Mobile Technology in Healthcare Environment: Security Vulnerabilities and Countermeasures”, School of Computing and Information Sciences, Florida International University, 2018. Available at: <https://arxiv.org/abs/1807.11086>.

Invited Talks and Presentations

1. **[Texas Tech]** “Detection and Defenses Against Abusive Friend Attacks in Online Social Networks”, Research Seminar, Department of Computer Science, Texas Tech University, PA, USA, May 2023.
2. **[Southern Illinois]** “Let’s Talk Research: NSF Proposal Workshop”, Panelist for NSF CRII Proposal, Southern Illinois University, IL, USA, Apr 2023.
3. **[Alabama Birmingham]** “Identifying and Countering Abusive Friend Requests in Online Social Networks”, Research Seminar, Department of Computer Science, University of Alabama at Birmingham, AL, USA, Feb 2023.
4. **[North Texas]** “Detection and Defenses Against Abusive Friend Attacks in Online Social Networks”, Research Seminar, Department of Computer Science, University of North Texas, PA, USA, Jan 2023.
5. **[Wisconsin-Milwaukee]** “Identifying and Protecting Against Abusive Friend Requests in Online Social Networks”, Research Seminar, Department of Computer Science, University of Wisconsin-Milwaukee, WI, USA, Dec 2022.
6. **[Sonoma State]** “AbuSniff: An Automated Social Network Abuse Detection System”, CS Colloquium, Department of Computer Science, Sonoma State University, CA, USA, Aug 2021.
7. **[Pennsylvania Western]** “Building Automated Systems to Tackle Online Social Networking Risks”, Computer Science Club, Pennsylvania Western University, PA, USA, Feb 2020.
8. **[Pennsylvania Western]** “How dangerous can the Internet be? A look into online security”, STEM Day, Pennsylvania Western University, PA, USA, Oct 2019.
9. **[Florida International]** “Detection And Prevention Of Abuse In Online Social Networks”, School of Computing and Information Sciences, Florida International University, FL, USA, Mar 2019.
10. **[Stanford]** “When Your Friend Becomes Abuser in Facebook”, ICWSM Science Slam at Dutch Goose, Stanford University, CA, USA, Jun 2018.
11. **[Stanford]** “Automatic Detection and Defenses Against Abusive Facebook Friends”, Seminar talk at Stanford University, CA, USA, Jun 2018.
12. **[BUET]** “Using Petri Net to Model Attacks and Defenses in IP Mobility Protocols”, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, May 2014.

PROFESSIONAL ACTIVITIES

■ Review Panels

- National Science Foundation (NSF)
- Department of Energy (DOE)
- SIU System Faculty Collaboration Award

■ Research Panels

- Panelist, Let’s Talk Research (Workshop and panel discussion for early career SIUC faculty on federal funding opportunities)

■ Editorial Board Member

- American Journal of Computer Science and Technology (AJCST)
- Frontiers in Human Dynamics
- International Journal on Cryptography and Information Security (IJCIS)
- International Journal of Network Security & Its Applications (IJNSA)

■ Program Committee Member

- 6th International Conference on Computer Communication and the Internet (ICCCI) [2024]

- 12th International Conference on Networks, Communication and Computing (ICNCC) [2023]
 - IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) [2023]
 - AAAI International Conference on Web and Social Media (ICWSM) [2023]
 - 5th International Conference on Computer Communication and the Internet (ICCCI) [2023]
 - IEEE Symposium on Computational Intelligence in Cyber Security (IEEE CICS) [2023]
 - Decentralized Deep Learning: New Trends and Advanced Technologies (DDL) [2023]
 - 7th Workshop on Online Abuse and Harms (WOAH), colocated with ACL'23 [2023]
 - 4th International Conference on Computer Communication and the Internet (ICCCI) [2022]
 - 2022 Information Technology & Applications Symposium (ITAS) [2022]
 - IEEE COMPSAC Smart and Connected Health (SCH) Symposium [2021]
 - The Consortium for Computing Sciences in Colleges (CCSC) [2020]
 - The International Workshop on Security, Privacy, and Trust for Emergency Events (EmergencyComm) [2020]
 - 6th Workshop on Online Abuse and Harms (WOAH), colocated with EMNLP [2022]
 - 5th Workshop on Online Abuse and Harms (WOAH), colocated with EMNLP [2021]
 - 4th Workshop on Online Abuse and Harms (WOAH), colocated with EMNLP [2020]
 - 4th ACL Workshop on Abusive Language Online (ALW) [2020]
 - 3rd ACL Workshop on Abusive Language Online (ALW) [2019]
- **Conference Reviewer**
- ACM CHI Conference on Human Factors in Computing Systems (ACM CHI)
 - IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)
 - AAAI International Conference on Web and Social Media (ICWSM)
 - ACM/SIGAPP Symposium on Applied Computing (ACM SAC)
 - ACM ASIA Conference on Computer and Communications Security (ACM ASIACCS)
 - International Conference on Electrical, Electronics, Materials and Applied Science (ICEEMAS)
 - IEEE International Conference on Networking Systems and Security (NSysS)
- **Journal Reviewer**
- ACM Transactions on Social Computing
 - IEEE Transactions on Computational Social Systems
 - Springer Nature Journal
 - KSII Transactions on Internet and Information Systems
 - Nature Scientific Reports
 - Big Data and Cognitive Computing (BDCC)
 - Applied Sciences Journal (MDPI)
 - International Journal of Network Security & Its Applications (IJNSA)
 - International Journal on Cryptography and Information Security (IJCIS)
 - The Consortium for Computing Sciences in Colleges (CCSC)
 - Education Research Journal (ERJ)
- **Academic Service**
- Southern Illinois University**
- Computing Advisory Committee [2021 – Current]
 - Graduate School Committee [2022 – Current]
 - Cybersecurity CAE Designation Committee [2022 – Current]
 - School and College Level Ad Hock Website Committee [2022 – Current]
 - NSA Cyber Operations Accreditation Committee [2021 – Current]
 - SoC Operating Paper Committee [2021 – Current]
 - Chair, Faculty Search Committee [2022]
 - Reviewer, SIU System Collaborative Grant [2022 – Current]
 - Faculty Mentor, DOE CyberForce Competition [2022, 2023]
 - Faculty Advisor, SIU Bangladesh Students Association [2022 – Current]
 - Director, Security and Privacy Enhanced Machine Learning (SUPREME) Lab [2021 – Current]

Pennsylvania Western University

- MACS Sabbatical Leave Committee [2020 – 2021]
- MACS Retention and Recruitment Committee [2020 – 2021]
- CS Curriculum Committee [2019 – 2021]
- Cybersecurity Curriculum Committee [2019]
- MACS Library Committee [2019 – 2021]
- Director, Privacy Enhanced Security Lab (PENSLab) [2019 – 2021]

■ **Dissertation Committee**

- Kazi Mehedi Hasan (SIU)
- Bhargav Krishna Thota (SIU)
- Rifat Hasan (SIU)

MEDIA COVERAGE

- “SIU professor aims to prevent fraud caused by sock puppet social media accounts”, Reported by Tim Crosby, **The Southern Illinoisan, SIU News, My Journal Courier, National Cybersecurity News, SIU Alumni Magazine**. Apr 19, 2022. Available at: <https://thesouthern.com/>.
 - The reports talk about our project to investigate ways to prevent sock puppet connection requests, which are false online identities and user accounts created for deceptive purposes. Sock puppet requests can lead to profile hacking, identity theft and other havoc for social media users. Our project aims to build a digital framework rooted in cognitive psychology, user-centric research and machine learning methods to defend against such accounts and requests in online social networks.
- “Whats the right time to lift the lockdown?”, Reported by Reaz Ahmad, **Dhaka Tribune**, July 12, 2021. Available at: <https://www.dhakatribune.com/health/coronavirus/2021/07/12/what-s-the-right-time-to-lift-the-lockdown>.
 - This report discusses our work that tried to answer what is the right time to lift the lockdown using data from 24 worldwide countries that impose lockdowns during the first wave of COVID surge. Prematurely lifting the lockdown, reopening the economy and relaxing curbs can potentially do more harm than good increasing the probability of an immediate third peak of disease resurgence resulting in a larger outbreak, worsening public health conditions, and a need for another abrupt lockdown.
- “New data-driven index could help countries reopen successfully during the pandemic”, Reported by Gisela Valencia, **phys.org**, Dec 17, 2020. Available at: <https://phys.org/news/2020-12-data-driven-index-countries-reopen-successfully.html>.
 - There are no published models or directives to inform policy about when to reopen schools, tourism, entertainment and other sectors. To help fill this need, a interdisciplinary group of experts developed a data-driven tool to assist countries in making decisions about when to reopen. The group studied trends in countries worldwide that seemed to reopen successfully, collected and analyzed data and created a model incorporating public health and economic considerations that resulted in the Large Scale Reopening (LSR) index.
- “Facebook Quizzes Can Give Personal Data to Obscure Companies”, Reported by Jamie Guirola, **NBC 6 News**, Nov 21, 2017. Available at: <https://www.nbcmiami.com/news/local/Facebook-Quizzes-Give-Personal-Data-to-Obscure-Companies-459217673.html>.
 - Discussion on dangers of Facebook quizzes and practical demonstration of how Facebook quizzes have the potential of relinquishing someone’s personal information to inconspicuous companies, aired on NBC as a sweeps prime-time story.
- “Studying Abuse Perception on Facebook Using Android App”, Reported by Ailsa Dann, **SAGE Research Methods** video streaming collection on data science, big data analytics and digital methods, Jun 27, 2018. Available at: <http://methods.sagepub.com/video/studying-abuse-perception-on-facebook-using-android-app>.
 - Interview that discusses the research of friend abuse on Facebook, including data collection, participant selection, app creation, algorithm development, data management, results of research, and advice for those interested in this type of research. To be used in higher education across academic levels and disciplines, and made available to academic libraries for subscription or purchase aimed at students and early career researchers who are interested in learning more about research in related field and acquiring the necessary skills to carry out their own research.

- “Digital Land Management System : A new initiative for Bangladesh”, Adopted and implemented by **Government of Bangladesh**, as part of vision 2021 plan. Available at: <http://www.newagebd.net/article/25642>.
 - Bangladesh govt. has taken our project proposal to simplify the land management through countrywide land mutation, collection of land development tax, khas land and sairat mohal (water bodies) management, office and finance-management. Proposal includes a model land management system which offers GPS based land surveying solutions and online land management encompassing an assortment of web based participatory services. Project link: <http://www.dlms.gov.bd/index.php>.

REFERENCES

Available upon request.