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 machine learning models and privacy-enhancing technologies. I also investigate disinformation, fraud, cyberattacks and cyberabuse in online and geosocial networks, with a focus on leveraging differential privacy, deep learning and federated learning to address complex societal challenges. My overarching goal is to design and develop applied AI for social good to provide a safe and trustworthy online ecosystem. I direct the Security and Privacy Enhanced Machine Learning (SUPREME) Lab, where my group develop privacy-enhanced secure systems and applied machine learning solutions.

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 — 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. $157,888. Duration: 04/01/2022-03/31/2024
  Title: CRII: SaTC: A Framework to Defend Against Sockpuppet Connection Requests in Social Networks.
- **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
- 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

RESEARCH 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

TEACHING EXPERIENCE

Assistant Professor of Computer Science

Fall 2022, Southern Illinois University — Aug 2022 – Dec 2022

- **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 understating 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 2022, Southern Illinois University — Jan 2022 – May 2022

- **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 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 Dissertation Advisor**
  - Sai Mani Teja Puppala
  - Ismail Hossain
  - Md. Jahangir Alam
  - Syed Mhamudul Hasan
- **Master's Thesis Advisor**
  - 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 — Summer 2017
  - Ivia Alvarez, Krista Shuckerow — Summer 2016
  - Frank Hu, Harold Simpson — 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. — Spring 2015
- 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. — Fall 2015

OTHER WORK EXPERIENCE

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

- **Sajedul Talukder**, "Detection and Prevention of Abuse in Online Social Networks", FIU Electronic Theses and Dissertations: 4026, Mar 2019.
- **Sajedul Talukder**, "Security Issues and Protection Mechanisms of IP Mobility Protocols", Bangladesh University of Engineering and Technology (BUET), 2014.

Book and Book Chapter

- Ismail Hossain, Sai Puppala, Ahmed Imteaj, **Sajedul Talukder**, "Predicting Diabetic Retinopathy using Federated Deep Learning", Book Chapter in Distributed Machine Learning and Optimization: Theory and Applications, USA, 2023. [Chapter proposal accepted]
- **Sajedul Talukder**, Abdur Shahid, "Automatic Detection and Defenses Against Abusive Friend Attacks in Online Social Networks", Book Chapter in Artificial Intelligence in Cybersecurity: The State of the art, **IOS-Press**, USA, 2023. [Chapter proposal accepted]
- Abdur Shahid, **Sajedul Talukder**, "Defending Against Personality Prediction Attack in Handwriting Recognition-based Systems Using a Local Differentially Private AI Framework", Book Chapter in Artificial Intelligence Methods and Applications in Computer Engineering, **IGI Global**, USA, 2023. [Chapter proposal accepted]
- Abdur Shahid, Niki Pissinou, **Sajedul Talukder**, "Protecting Location Privacy in Blockchain-based Mobile Internet of Things", Book Chapter in Principles and Practice of Blockchains, **Springer Nature**, Switzerland, 2022.
- **Sajedul Talukder**, "GPU-based Medical Image Segmentation: Brain MRI Analysis Using 3D Slicer", Book Chapter in Artificial Intelligence Applications for Health Care, **CRC Press, Taylor & Francis Group**, USA, 2021.

Refereed Journal Papers

- **Sajedul Talukder**, Bogdan Carbunar, "FriendLock: Enhancing User Awareness and Defenses Against Sock-puppet Friend Invitations in Facebook", IEEE Transactions on Computational Social Systems **(IEEE TCSS)**, Sep 2022. [Under review]
- **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 **(ACM TOPS)**, Aug 2022. [Under review]
- 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 (**IJAIA)**, Mar 2022.

- **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 (**IJAIA)**, Mar 2022.
- 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**, June 2021. [Impact factor: 4.576]
- **Sajedul Talukder** and Bogdan Carbunar, "A Study of Friend Abuse Perception in Facebook", ACM CHI Conference on Human Factors in Computing Systems (**CHI Journals**), May 2021. [Invited Journal]
- **Sajedul Talukder** and Bogdan Carbunar, "A Study of Friend Abuse Perception in Facebook", ACM Transactions on Social Computing (**ACM TSC**), Vol. 1, No. 1, Jan 2020.
- **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 (**IJCIS)**, Jul 2020.
- **Sajedul Talukder** and Zahidur Talukder, "A Survey on Malware Detection and Analysis Tools", International Journal of Network Security & Its Applications (**IJNSA**), Vol. 12, No. 2, Mar 2020.

Refereed Conference Papers

- Md. Monirul Islam, Mostafizur Rahman and **Sajedul Talukder**, "A Blockchain-based Smart framework for Contractual Agriculture", International Conference on Agriculture and Artificial Intelligence (**ICAAI**), Mar 2023. [Under review]
- **Sajedul Talukder**, Sai Puppala and Ismail Hossain, "Towards Federated Learning-based Contraband Detection within Airport Baggage X-Rays", 3rd International Conference on Machine Learning & Applied Network Technologies (**IEEE ICMLANT**), Dec 2022. [Under review]
- **Sajedul Talukder**, Nestor Hernandez, Mozhgan Azimpourkivi and Bogdan Carbunar, "User Awareness and Defenses Against Sockpuppet Friend Invitations in Facebook", In proceedings of the ACM/SIGAPP Symposium on Applied Computing (**ACM SAC**), Apr 2022.
- **Sajedul Talukder** and Riley Vaughn, "A Template for Alternative Proof of Work for Cryptocurrencies", In proceedings of the IEEE International Conference on Smart Generation Computing, Communication and Networking (**IEEE SMARTGENCON**), Oct 2021.
- Abdur Shahid and **Sajedul Talukder**, "Evaluating Machine Learning Models for Handwriting Recognition-based Systems under Local Differential Privacy", In proceedings of the IEEE International Conference on Innovations in Intelligent Systems and Applications Conference (**IEEE ASYU**), Oct 2021. **[Best Paper Award]**
- **Sajedul Talukder** and Neil Noyes, "Analyzing Brain Tumor MRI to Demonstrate GPU-based Medical Image Segmentation", In proceedings of the 37th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2021.
- Abdur Shahid and **Sajedul Talukder**, "A Study of Differentially Private Machine Learning in Healthcare", In proceedings of the IEEE International Conference on Innovations in Intelligent Systems and Applications Conference (**IEEE ASYU**), Oct 2021.
- **Sajedul Talukder** and Abdur Shahid, "Applying Local Differential Privacy in Handwriting Recognition-based Systems", In proceedings of the 37th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2021.
- **Sajedul Talukder** and Abdur Shahid, "Enhancing Alternative Proof of Work for Cryptocurrencies Using Machine Learning", In proceedings of the 37th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2021.
- Abdur Shahid and **Sajedul Talukder**, "Privacy-Preserving Activity Recognition from Sensor Data", In proceedings of the 37th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2021.
- Abdur Shahid and **Sajedul Talukder**, "Evaluation of Privacy-Preserving Logistic Regression and Naive Bayes Classifiers in Healthcare", In proceedings of the 37th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2021.
- **Sajedul Talukder**, "Towards Understanding Privacy Trade-off In An Epidemic", In proceedings of the 36th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 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 (**GHC**), Oct 2020.
- **Sajedul Talukder**, "Privacy and Security Vulnerabilities in Health Care Infrastructure Mobile Technology", In proceedings of the 36th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2020.
- Riley Vaughn and **Sajedul Talukder**, "A Template for Useful Proof of Work", In proceedings of the 36th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2020.

- **Sajedul Talukder**, "Tools and Techniques for Malware Detection and Analysis", Semantic Scholar, Feb 2020. Available at : semanticscholar.org.
- **Sajedul Talukder**, "AbuSniff: An Automated Social Network Abuse Detection System", In proceedings of the 35th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2019, Moon, PA.
- **Sajedul Talukder** and Bogdan Carbunar, "AbuSniff: Automatic Detection and Defenses Against Abusive Facebook Friends", Proceedings of the 12th International Conference on Web and Social Media (**AAAI ICWSM**), Jun 2018. **[Acceptance Rate = 16%]**
- **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", In proceedings of the IEEE International Conference on Current Trends in Computer, Electrical, Electronics and Communication (**IEEE ICCTCEEC**), Sep 2017.
- **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", In proceedings of the IEEE International Conference on Current Trends in Computer, Electrical, Electronics and Communication (**IEEE ICCTCEEC**), Sep 2017.
- **Sajedul Talukder** and Bogdan Carbunar, "When Friend Becomes Abuser: Evidence of Friend Abuse in Facebook", In proceedings of the 9th ACM Conference on Web Science (**ACM WebSci**), Jun 2017, Troy, NY.
- **Sajedul Talukder**, Md. Iftekharul Islam Sakib and Md. Mustafizur Rahman, "Digital Land Management System : A new initiative for Bangladesh", In proceedings of the 1st IEEE International Conference on Electrical Engineering and Information & Communication Technology (**IEEE ICEEICT**), Apr 2014. **[Best Paper Award]**
- **Sajedul Talukder**, Md. Iftekharul Islam Sakib and Md. Mustafizur Rahman, "Model for E-Government in Bangladesh: A Unique ID Based Approach", In proceedings of the 3rd IEEE International Conference on Informatics, Electronics & Vision (**IEEE ICIEV**), May 2014.

Workshops and Posters

- **Sajedul Talukder**, Ismail Hossain, Sai Puppala, "A Novel Hierarchical Federated Learning with Self-Regulated Decentralized Clustering", In proceedings of the 38th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2022, Center Valley, PA.
- **Sajedul Talukder**, Sai Puppala, Ismail Hossain, "Federated Learning-based Contraband Detection within Airport Baggage X-Rays", In proceedings of the 38th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2022, Center Valley, PA.
- **Sajedul Talukder**, Sai Puppala, Ismail Hossain, "Prediction of Childhood and Pregnancy Lead Poisoning Using Deep Learning", In proceedings of the 38th ACM CCSC Eastern Conference (**ACM CCSC**), Oct 2022, Center Valley, PA.
- **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 (**WMCHCI**), Jan 2014, Dhaka, Bangladesh.
- **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 (**WECS**), Sep 2013, Dhaka, Bangladesh.

Technical Report

- **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

WORK IN PROGRESS

- **Sajedul Talukder**, Nestor Hernandez, Mozhgan Azimpourkivi and Bogdan Carbunar, "'I don't remember exactly, but ...": Vulnerabilities and Defenses to Facebook Friend Spam", In preparation.
- **Sajedul Talukder**, Md. Iftekharul Islam Sakib, Md. Faruk Hossen and Md. Shohrab Hossain, "A Study of Attacks and Defenses of IP Mobility Protocols", In preparation.
- **Sajedul Talukder**, Md. Iftekharul Islam Sakib, and Md. Shohrab Hossain, "Secured Traffic Management Using Wireless Sensor Networks: Using RFID in Non-lane Road Intersections", In preparation.

TALKS AND PRESENTATIONS

- *AbuSniff: An Automated Social Network Abuse Detection System*, CS Colloquium, Department of Computer Science, **Sonoma State University**, CA, USA, Aug 2021.
- *Building Automated Systems to Tackle Online Social Networking Risks*, Computer Science Club, **Pennsylvania Western University**, PA, USA, Feb 2020.
- *How dangerous can the Internet be? A look into online security*, STEM Day, **Pennsylvania Western University**, PA, USA, Oct 2019.
- *Detection And Prevention Of Abuse In Online Social Networks*, School of Computing and Information Sciences, **Florida International University**, FL, USA, Mar 2019.
- *When Your Friend Becomes Abuser in Facebook*, ICWSM Science Slam at Dutch Goose, **Stanford University**, CA, USA, Jun 2018.
- *Automatic Detection and Defenses Against Abusive Facebook Friends*, Conference talk at **Stanford University**, CA, USA, Jun 2018.
- *Using Petri Net to Model Attacks and Defenses in IP Mobility Protocols*, **BUET**, Dhaka, Bangladesh, May 2014.

PROFESSIONAL ACTIVITIES

- **Editorial Board Member**
  - American Journal of Computer Science and Technology (AJCST)
  - International Journal on Cryptography and Information Security (IJCIS)
  - International Journal of Network Security & Its Applications (IJNSA)
- **Program Committee Member**
  - Decentralized Deep Learning: New Trends and Advanced Technologies (DDL) [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) [2020]
  - ACM ASIA Conference on Computer and Communications Security (ACM ASIACCS) [2017]
  - International Conference on Electrical, Electronics, Materials and Applied Science (ICEEMAS) [2017]
  - IEEE International Conference on Networking Systems and Security (NSysS) [2016]
- **Journal Reviewer**
  - KSII Transactions on Internet and Information Systems [2021]
  - Big Data and Cognitive Computing (BDCC) [2021]
  - Applied Sciences Journal (MDPI) [2021]
  - International Journal of Network Security & Its Applications (IJNSA) [2020 – Current]
  - International Journal on Cryptography and Information Security (IJCIS) [2020 – Current]
  - The Consortium for Computing Sciences in Colleges (CCSC) [2020]
  - Education Research Journal (ERJ) [2016]
- **Academic Service**
  Southern Illinois University
  - Computing Advisory Committee [2021 – Current]

- Graduate School 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]
- Faculty Mentor, DOE CyberForce Competition [2022]
- 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.