

NAZMUS SAKIB

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<https://nsakibuccs.github.io>

EDUCATION

Ph.D. in Cybersecurity

University of Colorado, Colorado Springs, USA

Expected: Dec 2026

GPA: 3.77/4.00

- Developed strategies to counteract networking threats and evaluate communication network protocols.
- Led research initiatives to research and enhance the security and reliability of blockchain cryptocurrency networks.
- Collaborated with interdisciplinary teams on vulnerability identification and security solutions in peer-to-peer networking systems.
- Managed security research projects in distributed networking architectures, with results published in esteemed conferences and journals.
- Presented research findings at domestic and international conferences, and active participation in IEEE and ACM professional community.

Master of Science in Computer Science (Research Mode)

University of Malaya, Malaysia

Feb 2018 – Sep 2020

Bachelor of Science (Engineering) in Computer Science and Engineering

Shahjalal University of Science and Technology, Bangladesh

Jan 2008 – Jun 2012

TECHNICAL SKILLS & COMPETENCIES

Blockchain and Cryptocurrency: Studied and modified Bitcoin and Ethereum protocols, enhancing implementations by proposing security mechanisms.

- Performed network sensing and traffic analysis, generated experimental datasets, identified network threats and proposed mitigation strategies.

AI/ML: Applied machine learning techniques for modeling, classification, and prediction in security-focused networks to expose patterns and anomalies.

- Developed predictive models for network behavior and applied classification methods for adversary recognition via network fingerprinting.

Cryptography: Expertise in traditional applied cryptography and post-quantum techniques, with a focus on protocol design and systems analysis.

- Mentored students in cryptography courses emphasizing practical usage and implications of the cryptographic principles.

Recommendation Engines: Created intelligent engines capable of generating personalized and context-aware results given user constraints.

- Integrated content-based filtering, collaborative filtering, and data mining techniques to build high-performing personalized models.

Tools and Platforms: Git, Docker, GNU Debugger (gdb), Bitcoin Core, Geth (Go-Ethereum), Wireshark, Scapy, Tcpdump, Nmap, Netcat, Metasploit, OpenSSL, Jupyter, Pandas, NumPy, SciPy, Matlab, Matplotlib, scikit-learn, TensorFlow, PyTorch

Languages: C/C++, Python, Java, Unix/Bash, JavaScript, C#/Visual Basic, Assembly, Ruby, PHP, and Regular Expression pattern matching.

Relevant Coursework: Applied Cryptography, Fundamental of Computer/Network Security, Homeland Security & Cyber Security, Computer Communication, Privacy and Censorship, Reinforcement Learning, Networks, Crowds, and Markets

EXPERIENCE

Graduate Teaching Assistant

- @ Computer Science Department, University of Colorado, Colorado Springs, USA Aug 2025 – Dec 2025
40 hrs/wk
- Instructor for CS 1150: Principles of Computer Science. Taught Java programming; prepared and delivered lectures, live-coding demos, and in-class exercises; developed assignments and quizzes aligned with learning outcomes.
 - Teaching support for CS 2060: Programming with C. Led tutoring sessions, graded programming assignments and exams, and held office hours.

Summer Conference Assistant

- @ University of Colorado, Colorado Springs, USA Jun 2025 – July 2025
40 hrs/wk
- Supported youth camps and large-scale conferences by managing front desk operations, assisting in guest services, and setup.
 - Collaborated with a diverse team to ensure smooth hospitality operations in a fast-paced, service-oriented environment.
 - Strengthened skills in communication, problem-solving, teamwork, and customer service.

Graduate Teaching Assistantships

- @ Computer Science Department, University of Colorado, Colorado Springs, USA Jan 2025 – May 2025
40 hrs/wk
- Teaching support for CS 3020: Introduction to C#. Responsibilities included grading, tutoring, recitation, office hours, and attending classes.
 - Teaching support for CS 3910: System Administration and Security. Graded, tutored, recitation, attended classes, and held office hours.
 - Teaching support for CS 4920: Applied Cryptography. Responsibilities included grading, tutoring, recitation, office hours, and attending classes.

Mentored Doctoral Fellowship

- @ Graduate School, University of Colorado, Colorado Springs, USA Aug 2024 – May 2025
40 hrs/wk
- Problem-Solving:** Collaborated to enhance distributed networked security by identifying and addressing vulnerabilities in Bitcoin and developing robust countermeasures against novel threats.
 - Data Analysis:** Analyzed P2P network behaviors and utilized machine learning for peer behavior prediction, and anomaly detection.

Graduate Research Assistant

- @ Networked System Security Lab, University of Colorado, Colorado Springs, USA Jun 2023 – Dec 2024
40 hrs/wk
- Problem-Solving:** Collaborated on strengthening distributed network security by identifying vulnerabilities in the Bitcoin network and designing effective countermeasures against emerging threats.
 - Data Analysis:** Investigated P2P network behavior and applied machine learning techniques to predict behavior and detect anomalies.
 - Detail-Oriented:** Performed in-depth analyses and contributed to peer-reviewed publications and conference presentations.

Departmental Teaching Assistant

- @ Computer Science Department, University of Colorado, Colorado Springs, USA Jan 2023 – May 2023
40 hrs/wk
- Teaching assistant for CS 1450 Data Structures. Responsibilities included grading, tutoring, recitation, office hours, and attending classes.

Assistant Professor

- @ Department of Computer Science and Engineering, Dhaka International University, Bangladesh Jan 2022 – Dec 2022
40 hrs/wk
- Teaching and Curriculum Development:** Prepared and delivered lectures, tutorials, and lab sessions for undergraduate and graduate courses.
 - Developed course materials, syllabus, and assessments to align with academic standard. Supervised projects, internships, and thesis work.
 - Research and Scholarly Activities:** Conducted independent and collaborative research in computer science and engineering fields. Published research findings in peer-reviewed journals and presented at academic conferences. Experience in academic grant applications for funding.

- **Student Mentorship and Advising:** Advise students on academic and career matters. Guide students in research projects, competitions, and extracurricular academic activities.

Graduate Research Assistant

@ Software Engineering Lab, University of Malaya, Malaysia	Feb 2018 – Jan 2020 40 hrs/wk
▪ Problem-Solving: Designed recommendation model addressing cold-start issues by utilizing public contextual metadata.	

- **Data Analysis:** Extracted and analyzed scholarly data using citation matrices and evaluated models with Precision, Recall, F1, MAP, and MRR.
- **Detail-Oriented:** Conducted rigorous experiments and published findings in peer-reviewed journals, ensuring research accuracy and quality.

Research Fellow, Bangabandhu Science and Technology Fellowship Trust

@ Ministry of Science and Technology, People's Republic of Bangladesh.	Feb 2018 – Jan 2020 40 hrs/wk
▪ Conducted advanced postgraduate research in computer science, focusing on intelligent systems for scientific paper recommendation.	

- Contributed to the advancement of data-driven solutions aligned with national priorities in education, research, and innovation.

Lecturer

@ Department of Computer Science and Engineering, Dhaka International University, Bangladesh	May 2014 – Dec 2017 40 hrs/wk
▪ Teaching and Curriculum Development: Delivered lectures, tutorials, and lab sessions for students; developed and updated course syllabus, assessments, and instructional materials in alignment with academic standards. Supervised student thesis work, projects, and internships.	

- **Research and Scholarly Activities:** Conducted research in areas including recommender systems and distributed computing; published peer-reviewed articles and presented findings at academic conferences. Engaged in collaborative research and supported academic grant proposals.
- **Student Mentorship and Advising:** Provided academic and career guidance to students; mentored student research projects and encouraged participation in competitions and extracurricular activities.

Junior Software Engineer

@ MicroMac Techno Valley Ltd, Bangladesh	Oct 2013 – Apr 2014 40 hrs/wk
▪ Developed dynamic and responsive websites using PHP, MySQL, and the CodeIgniter framework.	

- Contributed to design and development of software solutions for banking clients, focusing on secure data handling and transaction processing.
- Collaborated with cross-functional teams to gather requirements, implement features, and ensure software quality through testing/debugging.

OPEN-SOURCE CONTRIBUTIONS & NOTABLE PROJECTS

Bitcoin Core: Protocol Implementation & Logging Enhancements

https://github.com/nsakibuccs/Bitcoin-P2P-Enhanced-Network-Logging	Jan 2023 – Present
▪ Introduced logging capabilities for P2P networking nodes with real-time tracking for peer connections.	

- Formulated an optimized network logging application for efficient data storage and transfer.
- Introduced specialized RPC commands for enhanced system interactions.

ML-Based Prediction and Classification in Bitcoin

https://github.com/nsakibuccs/Machine-Learning-Prediction-and-Classification	Aug 2024 – Present
▪ Integrated predictive and classification pipelines to anticipate peer behavior and detect profile spoofing.	

- Established sensing, labeling, and training workflows based on live network observations.
- Evaluated deployable models based on measured accuracy, stability, and runtime efficiency.

Cryptography Utility for File Encryption and Signing

https://github.com/nsakibuccs/Cryptographic-Primitives-Toolkit	Jan 2023 – May 2023
▪ Built a cryptographic library for RSA-2048 keypair generation, AES-CBC file encryption/decryption, and RSA-PSS signing/verification.	

- Provided immediate authenticity checks with signature verification feedback to confirm validity or flag tampering.

Context-Aware Personalized Recommendation Framework

https://github.com/nsakibuccs/Context-Aware-Personalized-Recommendation-Framework	Feb 2018 – Jan 2020
▪ Developed a personalized recommendation model that helps novice researchers quickly find the most relevant research papers.	

- Applied association mining to find hidden relationships of data, and TF-IDF technique for feature extraction.

AWARDS & HONORS

▪ Recipient: Mentored Doctoral Fellowship, Graduate School, UCCS	Aug 2024 – May 2025
▪ Best Paper Award at 16 th IEEE International Colloquium on Signal Processing & Its Applications (CSPA), Malaysia	
▪ Research Fellow, Bangabandhu Science and Technology Fellowship Trust, Ministry of Science and Technology, People's Republic of Bangladesh	Received – Feb 2020 Feb 2018 – Jan 2020

INVITED TALKS & PRESENTATIONS

@ University of Colorado, Colorado Springs, USA	Apr 2025
▪ Lecture: Blockchain and Cryptocurrency, Teaching Assistant- CS 4920 Applied Cryptography	
@ IEEE 21 st Consumer Communications & Networking Conference (CCNC)	Jan 2024
▪ Conference Presentation: Positive Reputation Score for Bitcoin P2P Network	
@ N3SP Spring Forum, US Air Force Academy	Apr 2023
▪ Poster Presentation: Behavior-based Positive Reputation Score for Bitcoin P2P Network	
@ 16 th IEEE International Colloquium on Signal Processing & Its Applications (CSPA)	Feb 2020
▪ Conference Presentation: Renal Cell Cancer Nuclei Segmentation from Histopathology Image Using Synthetic Data	

RESEARCH PUBLICATIONS

Ongoing: 2, Accepted: 0, Published: 11

▪ "Anonymous Networking Detection in Cryptocurrency Using Network Fingerprinting and Machine Learning"	MDPI Electronics 2025
▪ "Analyzing and Modeling Connection Impact on Distributed Consensus in Cryptocurrency Blockchain"	
▪ "Network Fingerprinting Using Machine Learning for Anonymous Networking Detection in Cryptocurrency"	IEEE/IFIP NOMS 2025*
▪ "From Slow Propagation to Partition: Analyzing Bitcoin Over Anonymous Routing"	
▪ "Positive Reputation Score for Bitcoin P2P Network"	IEEE CCNC 2025*
▪ "Prevention of Shoulder-Surfing Attacks Using Shifting Condition With the Digraph Substitution Rules"	IEEE ICBC 2024*
▪ "A Hybrid Personalized Scientific Paper Recommendation Approach Integrating Public Contextual Metadata"	
▪ "A Collaborative Approach Toward Scientific Paper Recommendation Using Citation Context"	IEEE CCNC 2024*
▪ "Renal Cell Cancer Nuclei Segmentation from Histopathology Image Using Synthetic Data" (Best Paper Award)	IEEE AIA 2023
▪ "Indicates conferences recognized for their selectivity (acceptance rate below 30%)."	
▪ "Indicates conferences recognized for their selectivity (acceptance rate below 30%)."	IEEE Access 2021
▪ "Indicates conferences recognized for their selectivity (acceptance rate below 30%)."	IEEE Access 2020
▪ "Indicates conferences recognized for their selectivity (acceptance rate below 30%)."	IEEE CSPA 2020

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