

# NAZMUS SAKIB

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## 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

Aug 2025 – Dec 2025

@ Computer Science Department, University of Colorado, Colorado Springs, USA

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

Jun 2025 – July 2025

@ University of Colorado, Colorado Springs, USA

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

Jan 2025 – May 2025

@ Computer Science Department, University of Colorado, Colorado Springs, USA

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

Aug 2024 – May 2025

@ Graduate School, University of Colorado, Colorado Springs, USA

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

Jun 2023 – Dec 2024

@ Networked System Security Lab, University of Colorado, Colorado Springs, USA

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 detecting anomalies.
- **Detail-Oriented:** Performed in-depth analyses and contributed to peer-reviewed publications and conference presentations.

### Departmental Teaching Assistant

Jan 2023 – May 2023

@ Computer Science Department, University of Colorado, Colorado Springs, USA

40 hrs/wk

- Teaching assistant for **CS 1450 Data Structures**. Responsibilities included grading, tutoring, recitation, office hours, and attending classes.

### Assistant Professor

Jan 2022 – Dec 2022

@ Department of Computer Science and Engineering, Dhaka International University, Bangladesh

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.

<ul style="list-style-type: none"> <li>▪ <b>Student Mentorship and Advising:</b> Advise students on academic and career matters. Guide students in research projects, competitions, and extracurricular academic activities.</li> </ul>	
<b>Graduate Research Assistant</b>	Feb 2018 – Jan 2020
@ Software Engineering Lab, University of Malaya, Malaysia	40 hrs/wk
<ul style="list-style-type: none"> <li>▪ <b>Problem-Solving:</b> Designed recommendation model addressing cold-start issues by utilizing public contextual metadata.</li> <li>▪ <b>Data Analysis:</b> Extracted and analyzed scholarly data using citation matrices and evaluated models with Precision, Recall, F1, MAP, and MRR.</li> <li>▪ <b>Detail-Oriented:</b> Conducted rigorous experiments and published findings in peer-reviewed journals, ensuring research accuracy and quality.</li> </ul>	
<b>Research Fellow, Bangabandhu Science and Technology Fellowship Trust</b>	Feb 2018 – Jan 2020
@ Ministry of Science and Technology, People's Republic of Bangladesh.	40 hrs/wk
<ul style="list-style-type: none"> <li>▪ Conducted advanced postgraduate research in computer science, focusing on intelligent systems for scientific paper recommendation.</li> <li>▪ Contributed to the advancement of data-driven solutions aligned with national priorities in education, research, and innovation.</li> </ul>	
<b>Lecturer</b>	May 2014 – Dec 2017
@ Department of Computer Science and Engineering, Dhaka International University, Bangladesh	40 hrs/wk
<ul style="list-style-type: none"> <li>▪ <b>Teaching and Curriculum Development:</b> 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.</li> <li>▪ <b>Research and Scholarly Activities:</b> 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.</li> <li>▪ <b>Student Mentorship and Advising:</b> Provided academic and career guidance to students; mentored student research projects and encouraged participation in competitions and extracurricular activities.</li> </ul>	
<b>Junior Software Engineer</b>	Oct 2013 – Apr 2014
@ MicroMac Techno Valley Ltd, Bangladesh	40 hrs/wk
<ul style="list-style-type: none"> <li>▪ Developed dynamic and responsive websites using PHP, MySQL, and the CodeIgniter framework.</li> <li>▪ Contributed to design and development of software solutions for banking clients, focusing on secure data handling and transaction processing.</li> <li>▪ Collaborated with cross-functional teams to gather requirements, implement features, and ensure software quality through testing/debugging.</li> </ul>	

OPEN-SOURCE CONTRIBUTIONS & NOTABLE PROJECTS

<b>Bitcoin Core: Protocol Implementation &amp; Logging Enhancements</b>	Jan 2023 – Present
<a href="https://github.com/nsakibuccs/Bitcoin-P2P-Enhanced-Network-Logging">https://github.com/nsakibuccs/Bitcoin-P2P-Enhanced-Network-Logging</a> <ul style="list-style-type: none"> <li>▪ Introduced logging capabilities for P2P networking nodes with real-time tracking for peer connections.</li> <li>▪ Formulated an optimized network logging application for efficient data storage and transfer.</li> <li>▪ Introduced specialized RPC commands for enhanced system interactions.</li> </ul>	
<b>ML-Based Prediction and Classification in Bitcoin</b>	Aug 2024 – Present
<a href="https://github.com/nsakibuccs/Machine-Learning-Prediction-and-Classification">https://github.com/nsakibuccs/Machine-Learning-Prediction-and-Classification</a> <ul style="list-style-type: none"> <li>▪ Integrated predictive and classification pipelines to anticipate peer behavior and detect profile spoofing.</li> <li>▪ Established sensing, labeling, and training workflows based on live network observations.</li> <li>▪ Evaluated deployable models based on measured accuracy, stability, and runtime efficiency.</li> </ul>	
<b>Cryptography Utility for File Encryption and Signing</b>	Jan 2023 – May 2023
<a href="https://github.com/nsakibuccs/Cryptographic-Primitives-Toolkit">https://github.com/nsakibuccs/Cryptographic-Primitives-Toolkit</a> <ul style="list-style-type: none"> <li>▪ Built a cryptographic library for RSA-2048 keypair generation, AES-CBC file encryption/decryption, and RSA-PSS signing/verification.</li> <li>▪ Provided immediate authenticity checks with signature verification feedback to confirm validity or flag tampering.</li> </ul>	
<b>Context-Aware Personalized Recommendation Framework</b>	Feb 2018 – Jan 2020
<ul style="list-style-type: none"> <li>▪ Developed a personalized recommendation model that helps novice researchers quickly find the most relevant research papers.</li> <li>▪ Applied association mining to find hidden relationships of data, and TF-IDF technique to for feature extraction.</li> </ul>	

AWARDS & HONORS

<ul style="list-style-type: none"> <li>▪ <b>Recipient:</b> Mentored Doctoral Fellowship, Graduate School, UCCS</li> <li>▪ <b>Best Paper Award</b> at 16<sup>th</sup> IEEE International Colloquium on Signal Processing &amp; Its Applications (CSPA), Malaysia</li> <li>▪ <b>Research Fellow</b>, Bangabandhu Science and Technology Fellowship Trust, Ministry of Science and Technology, People's Republic of Bangladesh</li> </ul>	Aug 2024 – May 2025 Received – Feb 2020 Feb 2018 – Jan 2020
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INVITED TALKS & PRESENTATIONS

@ University of Colorado, Colorado Springs, USA	Apr 2025
<ul style="list-style-type: none"> <li>▪ <b>Lecture:</b> Blockchain and Cryptocurrency, Teaching Assistant- CS 4920 Applied Cryptography</li> </ul>	
@ IEEE 21 <sup>st</sup> Consumer Communications & Networking Conference (CCNC)	Jan 2024
<ul style="list-style-type: none"> <li>▪ <b>Conference Presentation:</b> Positive Reputation Score for Bitcoin P2P Network</li> </ul>	
@ N3SP Spring Forum, US Air Force Academy	Apr 2023
<ul style="list-style-type: none"> <li>▪ <b>Poster Presentation:</b> Behavior-based Positive Reputation Score for Bitcoin P2P Network</li> </ul>	
@ 16 <sup>th</sup> IEEE International Colloquium on Signal Processing & Its Applications (CSPA)	Feb 2020
<ul style="list-style-type: none"> <li>▪ <b>Conference Presentation:</b> Renal Cell Cancer Nuclei Segmentation from Histopathology Image Using Synthetic Data</li> </ul>	

RESEARCH PUBLICATIONS

	Ongoing: 2, Accepted: 0, Published: 10
<ul style="list-style-type: none"> <li>▪ "Anonymous Networking Detection in Cryptocurrency Using Network Fingerprinting and Machine Learning"</li> <li>▪ "Analyzing and Modeling Connection Impact on Distributed Consensus in Cryptocurrency Blockchain"</li> <li>▪ "Network Fingerprinting Using Machine Learning for Anonymous Networking Detection in Cryptocurrency"</li> <li>▪ "From Slow Propagation to Partition: Analyzing Bitcoin Over Anonymous Routing"</li> <li>▪ "Positive Reputation Score for Bitcoin P2P Network"</li> <li>▪ "Prevention of Shoulder-Surfing Attacks Using Shifting Condition With the Digraph Substitution Rules"</li> <li>▪ "A Hybrid Personalized Scientific Paper Recommendation Approach Integrating Public Contextual Metadata"</li> <li>▪ "A Collaborative Approach Toward Scientific Paper Recommendation Using Citation Context"</li> <li>▪ "Renal Cell Cancer Nuclei Segmentation from Histopathology Image Using Synthetic Data" (<b>Best Paper Award</b>)</li> </ul>	MDPI Electronics 2025 IEEE/IFIP NOMS 2025* IEEE CCNC 2025* IEEE ICBC 2024* IEEE CCNC 2024* IEEE AIA 2023 IEEE Access 2021 IEEE Access 2020 IEEE CSPA 2020

\* Indicates conferences recognized for their selectivity (acceptance rate below 30%).