**NAZMUS** SAKIB

[nsakib@uccs.edu](mailto:nsakib@uccs.edu) ◾ (719) 412-8216  
[https://nsakibuccs.github.io](https://nsakibuccs.github.io/)

**EDUCATION**

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| **Ph.D. in Cybersecurity** | *Expected*: | *Dec 2026* |
| *University of Colorado, Colorado Springs, USA* | *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. | | |

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| **Master of Science in Computer Science *(Research Mode)*** *University of Malaya, Malaysia* | *Feb 2018* | *—* | *Sep 2020* |

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| **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**

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| **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. | | | |

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| **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. | | | |

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| **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. | | | |

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| **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. | | | |

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| **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. | | | |

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| **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. | | | |

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

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| **Graduate Research Assistant** | *Feb 2018* | *—* | *Jan 2020* |
| * *Software Engineering Lab, University of Malaya, Malaysia* | *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. | | | |

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| **Research Fellow, Bangabandhu Science and Technology Fellowship Trust** | *Feb 2018* | *—* | *Jan 2020* |
| * *Ministry of Science and Technology, People's Republic of Bangladesh.* | *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. | | | |

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| **Lecturer** | *May 2014* | *—* | *Dec 2017* |
| * *Department of Computer Science and Engineering, Dhaka International University, Bangladesh* | *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. | | | |

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| **Junior Software Engineer** | *Oct 2013* | *—* | *Apr 2014* |
| * *MicroMac Techno Valley Ltd, Bangladesh* | *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**

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| **Bitcoin Core: Protocol Implementation & Logging Enhancements**  [*https://github.com/nsakibuccs/Bitcoin-P2P-Enhanced-Network-Logging*](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. | | | |

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| **ML-Based Prediction and Classification in Bitcoin**  [*https://github.com/nsakibuccs/Machine-Learning-Prediction-and-Classification*](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. | | | |

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| **Cryptography Utility for File Encryption and Signing**  [*https://github.com/nsakibuccs/Cryptographic-Primitives-Toolkit*](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. | | | |

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| **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 to for feature extraction. | | | |

**AWARDS & HONORS**

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

**INVITED TALKS & PRESENTATIONS**

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| * *University of Colorado, Colorado Springs, USA* | *Apr 2025* |
| * **Lecture:** Blockchain and Cryptocurrency, Teaching Assistant- CS 4920 Applied Cryptography | |

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| * *IEEE 21st 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 | |

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| * *16th 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: 10*

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| * “[Anonymous Networking Detection in Cryptocurrency Using Network Fingerprinting and Machine Learning](https://doi.org/10.3390/electronics14112101)” | *MDPI Electronics 2025* |
| * “[Analyzing and Modeling Connection Impact on Distributed Consensus in Cryptocurrency Blockchain](https://doi.org/10.1109/NOMS57970.2025.11073661)” | *IEEE/IFIP NOMS 2025\** |
| * “[Network Fingerprinting Using Machine Learning for Anonymous Networking Detection in Cryptocurrency](https://doi.org/10.1109/CCNC54725.2025.10976162)” | *IEEE CCNC 2025\** |
| * “[From Slow Propagation to Partition: Analyzing Bitcoin Over Anonymous Routing](https://doi.org/10.1109/ICBC59979.2024.10634476)” | *IEEE ICBC 2024\** |
| * “[Positive Reputation Score for Bitcoin P2P Network](https://doi.org/10.1109/CCNC51664.2024.10454756)” | *IEEE CCNC 2024\** |
| * “[Prevention of Shoulder-Surfing Attacks Using Shifting Condition With the Digraph Substitution Rules](https://doi.org/10.47852/bonviewAIA2202289)” | *IEEE AIA 2023* |
| * “[A Hybrid Personalized Scientific Paper Recommendation Approach Integrating Public Contextual Metadata](https://doi.org/10.1109/ACCESS.2021.3086964)” | *IEEE Access 2021* |
| * “[A Collaborative Approach Toward Scientific Paper Recommendation Using Citation Context](https://doi.org/10.1109/ACCESS.2020.2980589)” | *IEEE Access 2020* |
| * “[Renal Cell Cancer Nuclei Segmentation from Histopathology Image Using Synthetic Data” (**Best Paper Award**)](https://doi.org/10.1109/CSPA48992.2020.9068701) | *IEEE CSPA 2020* |
| \* *Indicates conferences recognized for their selectivity (acceptance rate below 30%).* |  |