Madhab Chandra Das

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Research Profile

Graduate researcher specializing in digital forensics, cybersecurity, and machine learning. My work focuses on explainable AI (XAI) for forensic interpretation, including encrypted traffic analysis and process-level memory forensics. I develop forensic datasets, design machine learning models, and conduct cross-dataset evaluations to assess generalization and reliability. My research also includes dataset development for quantum cybersecurity and network traffic analysis, supporting explainable and evidence based forensic investigation.

Research Interests

Digital Forensics; Memory Forensics; Network Traffic Forensics (Encrypted Traffic); Machine Learning for Cybersecurity; Explainable AI (SHAP, LIME); IoT Security and Forensics; Malware and Ransomware Detection

Education

Sam Houston State University, USA — Aug 2025 – Present
PhD in Digital and Cyber Forensics, CGPA: 4.00/4.00
Graduate Research Assistant

Washington University of Science and Technology (WUST), USA — 2023 – 2025
Master's in Cybersecurity, CGPA: 3.92/4.00

Jahangirnagar University, Bangladesh — 2020 – 2022
MBA, CGPA: 3.13/4.00

University of Information Technology and Sciences (UITS), Bangladesh — 2008 – 2013
BSc in Electrical and Electronic Engineering, CGPA: 3.83/4.00

Publications

1. Das, M.C., Liu, Q., "Explainable False Positives in Cross-Dataset Encrypted Traffic for Forensic Interpretation," Submitted, 2026.
2. Das, M.C., Rasheed, A., "Explainable Process-Level Memory Forensics Using Machine Learning and SHAP," Under Review, 2026.
3. Ahmed, S., Das, M.C., et al., "Multi-Class Plant Disease Classification Using YOLOv11," Accepted.
4. Ahmed, S., Das, M.C., Liu, Q., "Toward Forensic-Ready Intrusion Detection," Submitted, 2026.
5. Ahmed, S., Das, M.C., et al., "Traffic Accident Detection Using YOLOv9," Under Review, 2026.
6. Das, M.C., et al., "Machine Learning-Based Quantum Forensics in QKD," Under Review, 2026.
7. Das, M.C., "QKD Forensic Dataset Releases," DOI: 10.21227/s0qw-mb45, 2025–2026.
8. Ahmed, S., Tabassum, T., Das, M.C., Pham, V.V., "Traffic Accident Detection from Video Footage Using a CSP-Enhanced YOLOv9 Backbone," Submitted to *Electronics (MDPI)*, 2026.

Datasets and Research Resources

1. Das, M.C., "QKD-Forensic-Dataset: Large Dataset Release Version 2.0," Zenodo, Jan 2026.
2. Das, M.C., "QF-LOG: Quantum Forensic Dataset for QKD Networks," IEEE DataPort, Feb 2026.
3. Das, M.C., "QKD-Forensic-Dataset: Initial Dataset Release," 2025.

Research Experience

- Machine Learning-Based Quantum Forensics (QKD) – Attack Detection and Signature Extraction
- IoT Network Traffic Forensic Framework (Real-time)
- Process-Level Memory Forensics using Volatility and Machine Learning
- Explainable AI-based Forensic Analysis using SHAP

Reviewer Experience

International Conference on Cybersecurity, IoT, Data Science, and Digital Forensics (CIDDF), 2025

- Reviewed papers on IoT security, AI-based systems, and digital forensics.
- Evaluated machine learning methods, system architecture, experimental design, and research contribution.
- Reviewed topics including IoT security, GRU-based prediction, and AI workflow analytics.

Teaching Experience

- DFSC 3316 – Cryptography and Network Security (Spring 2026)
- COSC 1437 – Programming Fundamentals II (Fall 2025)

Technical Skills

Programming: Python, SQL
Tools: Wireshark, Volatility, Autopsy, Kali Linux, FTK Imager, Burp Suite
Systems: Linux, PowerShell
ML: Scikit-learn, XGBoost, LightGBM, CatBoost
Data Analysis: Excel, Pandas, NumPy

Certifications

- Certified Peer Reviewer – Elsevier (2025)
- Web of Science Peer Review Certification – Clarivate (2025)
- Cybersecurity and Risk Management Specialist (2024)
- AI for Cybersecurity (2024)

Awards

- COSET PhD Scholarship (2025/26)
- WUST Presidential Honor Certificate (2025)
- Academic Excellence Scholarships, WUST and UITS.

Extracurricular Activities

- President, Bangladesh Student Association, SHSU
- Member, Cybersecurity Club, WUST
- Former Member of Bangladesh Scouts and Rover Scouts.
- Musician (Guitar, Singing, Composition)