Postgraduate Seminar Series

Venue: Graduate Seminar Room
Date & Time: June 13, 2026 at 2:30 PM

Speaker Information

Md. Shariful Islam (Std No. 1018052073) is a part-time M.Sc. student in the Department of Computer Science and Engineering (CSE), Bangladesh University of Engineering and Technology (BUET). He completed his undergraduate studies in Computer Science and Engineering from BUET in 2014. He has extensive professional experience in digital trust infrastructures, including Public Key Infrastructure (PKI), digital signatures, cybersecurity, and blockchain-enabled systems. His research interests include blockchain technology, distributed systems, information security, digital trust infrastructures, and secure log management. He is currently conducting his postgraduate thesis under the supervision of Dr. Mohammad Saifur Rahman and co-supervision of Dr. M. Sohel Rahman, Professors in the Department of Computer Science and Engineering, BUET. He will be speaking about his ongoing research in this talk.

LOGSTAMPING: A BLOCKCHAIN-BASED LOG AUDITING FRAMEWORK FOR LARGE-SCALE SYSTEMS

Log management is a fundamental component of modern information system security, supporting compliance, forensic investigation, fault diagnosis, and anomaly detection. However, the massive volume of log data generated by contemporary cloud platforms, enterprise networks, and data centers makes it increasingly challenging to ensure the integrity, authenticity, and availability of logs using traditional centralized logging infrastructures. This research presents **LogStamping**, a blockchain-based log auditing framework designed to provide scalable, tamper-evident, and efficient log integrity verification for large-scale systems. The framework employs a hybrid chunking mechanism that groups log entries using configurable size and time thresholds and records only a SHA-256 hash of each chunk on a private Ethereum blockchain operating under Proof-of-Authority (PoA) consensus. By reducing blockchain transactions and avoiding per-entry on-chain storage, LogStamping significantly improves scalability while preserving reliable tamper detection capabilities. The architecture integrates real-time log ingestion, blockchain-based integrity verification, and optional encrypted archival storage using the InterPlanetary File System (IPFS). Experimental evaluation on approximately 14 million log entries demonstrates substantial improvements in storage efficiency, ingestion performance, and verification speed while maintaining 100% tamper detection accuracy. Comparative analysis with representative blockchain-based log auditing systems shows that LogStamping provides a practical and scalable solution for secure log management in modern distributed environments.