

Education

- **Doctor of Philosophy** in Software and Information System, [UNC Charlotte](#), NC, USA. [August 2016 - August 2023]
- **Bachelor of Science** in Computer Science and Engineering [January 2008 - February 2013]
 - ◊ [Bangladesh University of Engineering and Technology \(BUET\)](#), Dhaka, Bangladesh.

Professional Skills

- **Languages and Frameworks:**
 - ◊ **Expert:** Python, Java, C++, C, Prolog, Shell Scripting, SQL, Java Spring, JavaScript, MySQL, Oracle SQL, Elastic-search, RabbitMQ, OpenSSL, Stanford CoreNLP, AllenNLP, NLTK, Scikit-learn, Keras, Machine Learning, TCP/IP, OSI Model, MITRE ATT&CK Framework, CIS Critical Security Control, Cyber Threat Hunting.
 - ◊ **Working Knowledge:** R, C#, Microsoft .NET, PHP, Laravel, TensorFlow, Terraform, Ansible, Chef, Kubernetes.
- **Tools and Platforms:**
 - ◊ **Expert:** IDAPro, OllyDbg, Docker, Gradle, CMake, VirtualBox, VMWare, Git, Scrum/Agile, Windows, Linux, Mac.
 - ◊ **Exposure:** AWS, Azure, Weka, Gephi, Maven, Splunk, UML, Android.

Professional Experiences

- **Graduate Assistant**, [UNC Charlotte](#), NC, USA. [August 2016 - May 2023]
 - ◊ Developed distributed hierarchical event monitoring system to detect attacks based on attack technique description (static and behavioral features) provided by the MITRE ATT&CK framework, and taught graduate courses on cyber-security.
- **Team Lead, Security Lab**, [Kona Software Lab Ltd](#), Dhaka, Bangladesh. [January 2016 - June 2016]
- **Software Engineer, Security Lab**, [Kona Software Lab Ltd](#), Dhaka, Bangladesh. [March 2014 - December 2015]
 - ◊ Implemented dynamic libraries (.dll, .so, and .dylib) and different corresponding PKI system and CA toolkits using Java and C++ that comply with PKCS#11, FIPS, KISA, and PKCS#7.
- **Junior Software Engineer**, [Nascenia](#), Dhaka, Bangladesh. [March 2013 - February 2014]
 - ◊ Integrated different betting API's in betting website using PHP and MODX CMS.

Professional Projects

- **PKI-Middleware**, a [PKCS#11](#) dynamic library developed for Windows, Linux, MAC and Android platform which complies [KISA](#) and [FIPS](#) standards. Implemented multi-threading and multiprocessing, smart card profile initialization, asymmetric (RSA, ECA) and symmetric (DES3, AES, MAC, SEED) key operation (encryption, decryption, key generation, and Signature generation and verification). *Development Language:* C++, JNI, OpenSSL. [May 2014 - December 2015]
- **Custom CSP**, *Cryptographic Service Provider* is a MSDN Compatible library that implements the Microsoft's [CryptoAPI \(CAPI\)](#). This CSP is used to enable NFC-based smart card authentication in Windows OS. *Development Language:* C++, Windows API, OpenSSL. [January 2016 - April 2016]
- **CMS**, *Cryptographic Message Syntax* is a [PKCS#7](#) based toolkit developed to support [CA System](#) during certificate Issuance that supports all data types (*Signed, Enveloped, SignedAndEnveloped, data*) of [PKCS#7](#) and their operations. *Development Language:* Java. [May 2015 - June 2015]
- **PKI-Middleware Wrapper** is a Java wrapper to use [PKCS#11](#) middleware library in java application. It reduces maintenance complexity of [JNI](#), so that application developer don't have to write core C code to handle function call of [PKCS#11](#) libraries. *Development Language:* Java. [January 2015 - March 2015]

Dissertation Research Projects

- **Scalable-Hunter**, Distributed Hierarchical Event Monitoring System for Attack Diagnosis through Active Investigation of Attacker Activities. [August 2020 - till date]
 - ◊ Designed and implemented distributed hierarchical event monitoring system to reduce attack detection time, communication overhead and resource usage. Developed low-level log collecting agents for Windows system (ETW, event logs). Developed detectors to map low-level traces to MITRE ATT&CK technique and evidential reasoning framework which performs passive reasoning and active investigation on reported observables. *Development Languages/Tools:* Python, Java, RabbitMQ, ElasticSearch, Docker.
- **TTPHunter**, Automatic and Accurate Extraction of Threat Actions from Unstructured Text of CTI Sources and mapping of threat actions to MITRE ATT&CK techniques. [January 2017 - July 2018]
 - ◊ Extracted threat action from CTI reports using NLP and mapped the extracted threat actions to MITRE ATT&CK techniques and tactics using document similarity measures TF-IDF. *Development Language:* Java.

Publications

- Mohiuddin Ahmed, Jinpeng Wei, Ehab Al-Shaer. SCAHunter: Scalable Threat Hunting through Decentralized Hierarchical Monitoring Agent Architecture. (Computing 2023).
- Mohiuddin Ahmed, Jinpeng Wei, Yongge Wang and Ehab Al-Shaer. (2018). A Poisoning Attack Against Cryptocurrency Mining Pools. (CBT 2018).
- Mohiuddin Ahmed, Ehab Al-Shaer. (2019). Measures and metrics for the enforcement of critical security controls: a case study of boundary defense. (Poster presentation in HOTSOS 2019).
- Ghaith Husari, Ehab Al-Shaer, Mohiuddin Ahmed, Bill Chu, and Xi Niu. (2017). TTPDrill: Automatic and Accurate Extraction of Threat Actions from Unstructured Text of CTI Sources. (ACSAC 2017).
- Mohammed Noraden Alsaleh, Jinpeng Wei, Ehab Al-Shaer and Mohiuddin Ahmed. (2018). gExtractor: Towards Automated Extraction of Malware Deception Parameters. (SSPREW-8, 2018).