Mahbub Hossain Raton

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Experiences

United International University, Dhaka   **Jul 2021 – Present**
Lecturer, Department of Computer Science and Engineering
- ○ Faculty Profile: https://cse.uiu.ac.bd/profiles/mahbub

Bangladesh University of Engineering and Technology (BUET)   **Mar 2021 – Jun 2021**

Software Developer at Department of Computer Science, BUET
Project: Integrated Educational Information Management System (IEIMS)
- ● Resposibiliy: Backend APIs Development
- ● Tech Stack: Spring Boot, Keycloak Server, SQL Server, CentOS Server

Education

Bachelor of Science in Computer Science and Engineering   **Feb 2016 – Feb 2021**
Bangladesh University of Engineering and Technology, Dhaka
CGPA: 3.71/4.00

Research Interest

- ○ Computer Security
- ○ Network Security
- ○ Blockchain
- ○ Machine Learning in Security

Research Experiences

Blockchain Repository of NVidea Screen Reader Plugins   **Mar 2022 – Ongoing**

Collaborator: Prof. Syed Billah, PhD, Assistant professor, Penn State University, PA, USA
- ● NVidea Screen Reader is primarily used by blind people to easily operate Windows computers. There are many plugins available to enhance the capability of the Screen Reader.
- ● We developed a blockchain system to securely store and securely distribute NVidea Screen Reader plugins.
- ● Our proposed system contains a module that will automatically check and update all installed plugins to their latest version.

Undergraduate Thesis: Privacy and Efficiency in Private Blockchain   **Oct 2018 – Dec 2020**

*Supervisor***:** Prof. Abdullah Adnan, Ph.D., Assistant Professor, Department of CSE, BUET
- ● In this study, I propose a novel method to reduce storage requirements in a private blockchain system.
- ● With a reduced fault tolerance, We are able to achieve 90% reduction in storage using our method.

Publications

1. **M. H. Raton**, S. Saha, Md T Islam, and Muhammad A. Adnan, "SliveredChain: Reducing Storage in Private Blockchain Systems Using Fault-Tolerant Overlay of Non-Overlapping Shards ", **ICDCS'23, Hong Kong, China (Under Review).**

Technical Skills

Programming Language: Java, Python, C/C++, Javascript, Matlab, Intel 8086 Assembly, Shell Script, LATEX
Database: Oracle, MySQL, SQL Server
Network Analyzer/Simulation: Wireshark, Cisco Packet Tracer, NS2, Proteus, Logisim
Web: Spring Boot, Flask, HTML, CSS
Developer Tools: Git, Github, Bitbucket, Docker, Docker Composer, Colab, Android Studio, Postman
OS: Windows, Linux, Linux Server
Microcontroller: Atmel AVR, Arduino

Notable Projects

TCP Reset Attack | *Python, Scapy, pcap Library*   **Jul 2019 – Sept 2019**

I develop a tool to prematurely terminate an established TCP connection. This tool is able to use man-in-the-middle (MITM) to sniff a packet and build a forged TCP Reset packet with the correct sequence number.

Slivered-Chain | *Python, Flask, PyCrypto*   **Dec 2019 – Dec 2020**

Supervisor: Prof. Abdullah Adnan (BUET)
In this project, I develop a storage-optimized private blockchain system as a part of my thesis. We have been able to achieve up to a 90% reduction in storage.

Remote Access | *Java, UDP Socket API*   **Sept 2016 - Dec 2016**

A software to access and control the remote computer using a local mouse and keyboard. The user   **Github**
can also share files between remote and local computers.

College Admission System (CAD) | *Spring boot, Keycloak*   **Mar 2021 – Present**

Team Lead: Dr. Mohammad Saifur Rahman, Associate Professor, BUET
This is part of the parent project Integrated Educational Information Management System (IEIMS). The goal of this project is to create a web-based admission system.
I developed the backend APIs and secured those APIs using Spring Boot and Spring Security.
For details visit my webpage: College Admission System

Awards, Honors, and Scholarships

- **Deans Awards for three consecutive years**   **2017 – 2020**
- **BUET Merit Scholarship for Academic Excellence**   **2016 – 2019**
- **BUET Entrance Exam: 68th (top 7%)**   **2015**
- **Government Board Scholarship:**
  - Higher Secondary School Certificate (HSC) examination   **2016 – 2020**
  - Secondary School Certificate (SSC) examination   **2013 – 2015**
  - Junior School Certificate (JSC) examination   **2010 – 2012**
  - Primary School Certificate (PSC) examination   **2007 – 2009**

Relevant Courses

- Computer Security
- Machine Learning
- Numerical Methods
- Mathematical Analysis for Computer Science

Teaching Experiences (Undergraduate Program)

○ **CSE 1115 - Object Oriented Programming Language**

This is an introductory course to Object Oriented Programming (OOP) using Java language. The aim of this course is to make students understand the basic fundamental characteristics of the OOP paradigm. Moreover, this course prepares students to tackle complex programming problems and make good use of Object Oriented Programming to solve them.

○ **CSE 1116 - Object Oriented Programming Language Laboratory**

This course provides students practical knowledge on Object Oriented Programming (OOP) based on the content taught in the theory course CSE 1115 - **Object Oriented Programming Language**. Laboratory sessions and tutorials will be provided to encourage the acquisition of practical problem-solving skills using the OOP paradigm.

○ **CSE 324 - Computer Network Laboratory**

This course is necessary for helping the students achieve some practical basic knowledge in computer network issues and network applications using the existing protocols and architectures. A lab will teach students the usage of socket programming using python language. Students will be able to acquire hands-on experience with different routing protocols, access control list, DHCP, and Network Address Translation(Protocols) by doing experiments in Cisco Packet Tracer.

○ **CSE 415 - Pattern Recognition**

Pattern recognition course focuses on the recognition of patterns and regularities in data. This course provides a broad introduction to pattern mining tasks. Topics include: (i) Supervised learning, (ii) Unsupervised learning, and (iii) Active learning.

○ **CSE 4325 - Microprocessor, Microcontroller, and Interfacing**

Introduce microcomputer 16-bit and 32-bit architecture to the student. Furthermore, they will learn about the following topics: addressing modes, interrupts, multitasking and virtual memory; Memory interface; Bus interface, interfacing: programmable peripheral interface, serial communication interface, direct memory access, keyboard and display interface, Microcontroller: Introduction to micro-controllers(i.e. ATMega-32), How to Program an ATMega-32 Microcontroller using C.