Md **Raihan** Ahmed

SOFTWARE ENGINEER · SECURITY EXPERT

Salt Lake City, Utah, USA

☐ (+1) 385 622 2386 | ✉ raihan.ahmed05.96@gmail.com | 🏠 mdrahmed.github.io | 🐙 mdrahmed | 💼 mdrahmed | 🐦 @MRA20014771

"Let me help you make the change that you want to see in this world."

Experience

University of Utah *Utah, USA*

RESEARCH ASSISTANT *Aug. 2021 - Current*

- Implemented a CPS/ICS tracking software to trace all the activities of the System.
- ICSTracker is built with C++ & LLVM and tested on fischertechnik training factory 4.0 9v and SWaT water testbed.

Skills

Programming Lang.	Python, C/C++, Javascript, React.js, Node.JS, C#, JAVA, PHP, Typescript, Go, x86 Assembly
Compiler Dev. Tools	LLVM (used to build instrumentation tool)
Security Tools	Metasploit, Nmap, Burp Suite, Wireshark, AFL, AFL++, sqlmap, tcpdump, ghidra, IDA Pro
Frameworks	React.js, Node.js, Express.js, Android Native, Spring, Dot(.) Net
Data Science & ML	Tensorflow, Keras, NumPy, scikit-learn, Pandas, Matplotlib
Database	Oracle SQL, MySQL, MongoDB
Mining & Visualization Tools	gSpan, PrefixSpan, Graphviz
Dev. & Deployment Tools	GitHub, Docker, GraphQL
Softwares Used	Neovim, tmux, vim, vs code,
Data Analysis Software	Matlab, Google Colab, Jupyter, Anaconda
Building tools	Makefile, CMake, Ninja, Gradle
Others & OS's used	Shell Scripting, sh, Bash, Zsh, NixOS, Ubuntu, Kali Linux, macOS
Languages	English, Bangla, Hindi, Urdu

Education

University of Utah *Utah, USA*

PH.D. IN COMPUTER SCIENCE *Aug. 2021 - PRESENT*

- Supervisor: Dr. Mu Zhang

University of Utah *Utah, USA*

MS. IN COMPUTER SCIENCE *Aug. 2021 - May 2024*

- 3.86/4.00

Projects

ICSTracker: Trace back to the source of Intrusion in Industrial IoT Systems. *UofUtah*

PHD 1ST PROJ *GitHub* *Aug. 2021 - May 2024*

- It's a physical process-aware, cross-iteration and cross- domain approach to backtracking intrusions in ICS
- Built instrumentation passes to capture function calls, conditions and global variable values at runtime from the ICS controllers.

Interactive Visualization tool *UofUtah*

DATA VISUALIZATION COURSE *GitHub* *Aug. 2022 - Dec. 2022*

- Built website with javascript to explore video game sales by year and platform.

Fuzzing XPDF-4.04 *UofUtah*

APPLIED S/W SECURITY TEST. COURSE *Git1 Git2 Aug. 2022 - Dec. 2022*

- Discovered Critical bugs in XPDF with AFL++

Rollback attack in Cars *UofUtah*

CYBER-PHYS SYS & IOT SECURITY COURSE *Github* *Aug. 2022 - Dec. 2022*

- Built a rollback device with Arduino to access cars without using keys.

Publications

Biointerface Research in Applied Chemistry *Bangladesh*

OVARIAN CANCER SUBSTANTIAL RISK FACTOR ANALYSIS BY MACHINE LEARNING: A LOW INCOMING COUNTRY *paper* *Jul. 2020*

- Analyzed ovarian cancer data using various machine learning algorithms to identify significant risk factors

BMC bioinformatics *Bangladesh*

MACHINE LEARNING TO REVEAL AN ASTUTE RISK PREDICTIVE FRAMEWORK FOR GYNECOLOGIC CANCER AND ITS
IMPACT ON WOMEN PSYCHOLOGY: BANGLADESHI PERSPECTIVE *GitHub* *paper* *Apr. 2021*

- Developed a predictive algorithm using machine learning to assess the risk of cervical and ovarian cancer associated with stress

Electrical, Computer and Communication Engineering (ECCE) *Bangladesh*

A COMPARATIVE ANALYSIS OF TRADITIONAL AND MODERN DATA COMPRESSION SCHEMES FOR LARGE
MULTIDIMENSIONAL EXTENDIBLE ARRAY *paper* *Feb. 2019*

- Compared traditional and modern data compression schemes for multi-dimensional data and concluding that the Extendible Array Based Compression Scheme (EaCRS) is most efficient

Elsevier *Bangladesh*

A BIOINFORMATICS APPROACH FOR IDENTIFICATION OF THE CORE ONTOLOGIES AND SIGNATURE GENES OF
PULMONARY DISEASE AND ASSOCIATED DISEASES *paper* *Jul. 2020*

- Spotted out significant common genes and proteins among COPD, DM, CR, IHD, IS, TB, and OB diseases, suggesting drug signatures.

Journal of Proteins and Proteomics *Bangladesh*

PROTEIN INTERACTION NETWORK AND DRUG DESIGN OF STOMACH CANCER AND ASSOCIATED DISEASE: A
BIOINFORMATICS APPROACH *paper* *Dec. 2020*

- Identified common genes among seven diseases (OB, SC, CC, PC, PRC, LK, MD) to analyze their biological and genetic network.

Honors & Awards

INTERNATIONAL

2022	Volunteered at the ACM Conference on Computer and Communications Security (CCS)	*Las Angeles, U.S.A*
2022	Reviewed 19+ papers from renowned conferences e.g., ESWA, COSE, IoT.	*Utah, U.S.A*

DOMESTIC

2017	Grantee of Lutfar Rahman Scholarship (GPA 4.00) in the first year of undergraduate degree.	*Bangladesh*
2019	Granted special award(4th Place) for Mobile app contest (DIU Carnival) in 3rd year of undergrad.	*Bangladesh*
2019	Achieved first place in Beetles Hack tag Contest in 4th year of undergraduate degree.	*Bangladesh*

Extracurricular Activity

INTERNATIONAL

2022	Community Manager of Utah Security Club (UofU)	*Utah, U.S.A*

DOMESTIC

2019	Participated in Python Programming Competition arranged at university.	*Bangladesh*
2017	Learned Web design and Web development from JobsBD besides undergrad studies.	*Bangladesh*
2019	Granted special award(4th Place) for Mobile app contest (DIU Carnival) in 3rd year of undergrad.	*Bangladesh*
2010	Member of Sylhet Cadet College Soccer team. (4th in 2010, ICCFM)	*Bangladesh*