Md **Raihan** Ahmed

SOFTWARE ENGINEER · SECURITY EXPERT

Salt Lake City, Utah, USA

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"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*

- Course-based

Projects

ICSTracker: Trace back to the source of Intrusion in Industrial IoT Systems. *C++, LLVM, Python*

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.

Personal Portfolio with React.js *React.js Javascript*

PORTFOLIO *GitHub* *Aug. 2022 - Dec. 2022*

- Built my portfolio site with react.js.

Interactive Visualization tool *Javascript*

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

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

Fuzzing XPDF-4.05
APPLIED S/W SECURITY TEST. COURSE

LLVM, C++

Git1   Git2   Aug. 2022 - Dec. 2022

- Discovered Critical bugs in XPDF with AFL++

Rollback attack in Cars
CYBER-PHYS SYS & IoT SECURITY COURSE

Arduino, C++

Github   Aug. 2022 - Dec. 2022

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

Publications

Biointerface Research in Applied Chemistry
OVARIAN CANCER SUBSTANTIAL RISK FACTOR ANALYSIS BY MACHINE LEARNING: A LOW INCOMING COUNTRY

Bangladesh

paper   Jul. 2020

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

BMC bioinformatics
MACHINE LEARNING TO REVEAL AN ASTUTE RISK PREDICTIVE FRAMEWORK FOR GYNECOLOGIC CANCER AND ITS IMPACT ON WOMEN PSYCHOLOGY: BANGLADESHI PERSPECTIVE

Bangladesh

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)
A COMPARATIVE ANALYSIS OF TRADITIONAL AND MODERN DATA COMPRESSION SCHEMES FOR LARGE MULTIDIMENSIONAL EXTENDIBLE ARRAY

Bangladesh

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
A BIOINFORMATICS APPROACH FOR IDENTIFICATION OF THE CORE ONTOLOGIES AND SIGNATURE GENES OF PULMONARY DISEASE AND ASSOCIATED DISEASES

Bangladesh

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
PROTEIN INTERACTION NETWORK AND DRUG DESIGN OF STOMACH CANCER AND ASSOCIATED DISEASE: A BIOINFORMATICS APPROACH

Bangladesh

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*