Zeshan Ahmed Nobin

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Objective

Actively seeking systems security engineer, systems software engineer or devops roles for the year 2023-2024.

About me: I am a tech enthusiast. Love to learn about new systems and break them. Have an avid interest in binary exploitation and linux kernels.

Interests: Systems Security, Cyber Security, Embedded Systems, Computer Architecture, Systems Programming

Github: https://github.com/NobinPegasus **LinkedIn:** https://www.linkedin.com/in/zeshanahmednobin/

Website: https://nobinpegasus.github.io/

Education

Shahjalal University of Science and Technology | Sylhet, Bangladesh   *January 2018 – March 2023*

Bachelor of Science in Computer Science and Engineering, GPA 3.38

Thesis

Exploring the impact of memory safe language like Rust for different Spectre Attacks.

Skills

Programming: Java, Python, C, C++, Rust, MATLAB, MySQL, Embedded C, HTML, CSS, Bootstrap, Django, Assembly Language (x86, RISC-V, ARM, MIPS, IA32), Bash, PowerShell, Socket Programming, Automation, Shell Scripting, Git patches, Log Analysis

Security: Radare2, Ghidra, IDA, Cutter, Gdb, Bash, Pwntools, Pwndbg, GHex, Objdump, Puppeteer

Platforms: Linux (Ubuntu, Debian), Windows, Github, Docker, KVM, Virtualbox, VMWare

Hardware: Arduino Uno, Soldering, Oscilloscopes, Raspberry Pi

Software: Android Studio, Git, Multisim, MS Access, Excel, Intellij, VS Code, Netbeans, Codeblocks, Cisco Packet Tracer, Makefile, CMake

Communication: Teamwork, Leadership, Design proposals, technical reports, instruction manuals, presentations (large and small audiences)

Languages: English (fluent), Bangla (native), Urdu (conversational), Hindi (conversational), Arabic (Beginner)

Relevant Coursework: Structured Programming Language, Data Structure, OOP, Algorithm Design, Competitive Programming, Ethics and Cyber Law, Database System, Software Engineering & Design Patterns, Computer Graphics,Operating System and System Programming, Microprocessor and interfacing, Computer Architecture, Computer Networking, Introduction to Cryptography and Information Security.

Experience

Mentee - Linux Kernel Mentorship Program - LFX Foundation (part time)   *June 2023 - Present*

Under the mentorship of Ivan Orlov and Shuah Khan

*Requires the mentees to patch the linux kernel subsystem modules. My role specificities: **(To be done)***

- *Choosing two of subsystems to learn about and getting acquainted with OSS (Open Source Software) Community*
- *Writing at least 5 patches including documentation, kselftest, drivers*
- *Writing a blog sharing the whole experience with the community*

Research Assistant (Remote) - Future Technology for Usable, Reliable, and Efficient Security   *August 2022 - May 2023*
of Software and Systems (Futures-3 Lab), University of Utah

Under the supervision of Professor Stefan Nagy

Identification of what off-the-shelf disassemblers get wrong on non-C/C++ compiled binaries.

- *Tweaking the LLVM codebase for Rust to add compilation metadata (basic blocks and functions, jump table entries) to the compiled binaries.*
- *Building it error freely after changing the codebase.*

Independent Student Researcher – Bangla NLP Team   *September 2020 - March 2022*

Under the supervision of Dr. Sudipta Kar   ***Submitted to ACL Workshop (*SEM) 2023***

Worked on developing a Bangla Paraphrase Corpus (BnPC). Personal responsibilities include:

- *Building a scraper for local Bangla newspaper*
- *Collection and annotation of news dataset for the purpose of paraphrase matching*

- *Implementation of different NLP metrics (BLEU, METEOR) on previously created dataset*
- *Review and selection of various ML Model for application on created dataset*

Projects

Facebook Scraper
Summer 2023

A puppeteer based automation script to scrape Facebook data. Key features include:
- Automatic Facebook Login using headless browser
- User search with provided Username and saving all profile urls with the search results in a csv file
- Go to the users profiles and scraping their public posts in a JSON format file

Malware Classification using Machine Learning
Summer 2022

Used different machine learning models on Microsoft Malware Classification Challenge (BIG 2015) dataset to classify different classes of malwares. Personal responsibilities includes:
- Doing EDA (Exploratory Data Analysis) to extract important features from .asm and .byte files of the dataset.
- Applying different models (Random Forest, KNN, XGBoost) individually on .asm and .byte files.

Computer Graphics
Spring 2021

Implemented different algorithms using SDL2 library of C++ (Line Drawing (using DDA and Bressenam's algorithm), Circle Drawing (using midpoint and Bressenham's algorithm), Flood fill and Boundary fill algorithm (using graphics.h), Scan Line algorithm).

Muktobak
Fall 2019

Team-based collaborative android application using java that can convert a Bangla speech to Bangla sign language for the disabled. It also enables disabled people to communicate using a special keyboard that encapsulates Bangla Sign Languages.
- Google STT API was used to convert Bangla speech to text. Strings were matched with the text and the corresponding video, recorded by the team, was played.
- Initiated visits to the Govt. Deaf and Dumb school and took charge of recording, editing, and compressing the videos to minimize app storage size.
- Designed the UI and special Bangla Sign Language keyboard.
- Presented a poster at the ICBSLP-2019 (International Conference on Bangla Speech and Language Processing).
- Organizing steps on implementing ML models to identify hand gestures from videos and convert into Bangla texts.

Footy
Fall 2019

An arduino based bluetooth controlled basic motorized bot. Personal responsibilities include:
- *Assembling different modules of the bot*
- Building a custom battery to power the bot using cell phone batteries
- Programming the arduino for the bot's navigation

Achievements

- Secured **179th** position out of **6482 teams** in Hack the box Cyber Apocalypse CTF 2023
- Secured **6th** in the qualifier and **14th** position in the finals out of **160+ teams** nationwide in Flaghunt 2022.
- Secured **235th** position worldwide in Google CTF 2022
- Secured **790th** position out of **7024 teams** in Hack the box Cyber Apocalypse CTF 2022

CTF and Research Group

I am the organizer of NMOSS (Networking, Microarchitectural, Operating System Security Research Group @ SUST).
I lead unit A (Computer **A**rchitecture). The unit primarily conducts experiments related to microarchitectural security, low level security and hardware security. I'm also a member of unit O (**O**perating System) focusing on OS security issues.
We are committed to do impactful research targeting top venues like (USENIX, NDSS, OSDI, IEEE S&P).
We participate in various CTF contests under the same name of our research group. **Team NMOSS.** Link: nmoss.pages.dev
I mainly focus on Reverse Engineering, and Pawning related problems.

Organizations

Founding President - Research in Security Intelligence & Cyberthreat (ReSINC)

Center for Research, Testing and Consultancy (CRTC), Shahjalal University of Science and Technology (SUST)

The official cybersecurity club of Shahjalal University of Science and Technology (SUST). Here we conduct bi-weekly workshops. We discuss and demonstrate different cybersecurity related concepts. We also have plans to conduct penetration testing for various organizations.