Zeshan Ahmed Nobin

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Objective

Actively seeking software engineering, systems engineering, systems security roles for the year 2024-2025.

About me: I am a tech enthusiast. Love to learn about new systems and break them. Have an avid interest in binary exploitation, software engineering, reverse engineering, 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/ **Kernel & Security Blog:** https://nobinpegasus.github.io/blog

Education

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

Bachelor of Science in Computer Science and Engineering, GPA 3.39

Thesis

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

Skills

Programming: Java, Python, C, C++, JavaScript 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

Cloud: Oracle Cloud Infrastructure (Beginner), Amazon S3 (Basic)

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

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

Hardware: Arduino Uno, Soldering, Oscilloscopes, Raspberry Pi

Software: Android Studio, Git, Intellij, VS Code, Netbeans, Cisco Packet Tracer, Wireshark, 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. **HTB - Pentester Path (Ongoing)**

Experience

eBPF Engineer (intern) - Poridhi.io   *February 2024 - Present*

Personal responsibilities include: Demo: https://github.com/NobinPegasus/xdp-tutorial/tree/nobin

- Learning the basics of eBPF technology from Liz Rize books
- Developing an XDP Dump code using eBPF
- Developing a TC/eBPF code to capture the egress packets
- Using the previous TC/eBPF code capture the inner destination IP of openconnect packet
- Usage of gRPC to send the captured packets to a gRPC server

Pentester - Research in Security Intelligence & Cyberthreat (ReSINC) (part time)   *October 2023 - December 2023*

Center for Research, Testing and Consultancy (CRTC), SUST

We conduct penetration testing for internal systems of SUST. Currently we've discovered one Information Disclosure vulnerability on one of SUST systems.

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

Under the mentorship of Ivan Orlov and Shuah Khan

I've not successfully completed this mentorship's tasks, it required us to get five patches in the upstream linux kernel. But I've learnt the followings:

- *Got acquainted with the OSS (Open Source Software) community*
- *Compiling linux kernels from scratch and writing basic hello world module for the kernel*
- *Learnt to navigate syzkaller/syzbot (Automated kernel fuzzer of Google*
- *Learned to write patches for the kernel and learnt basics about linux documentation and subsystems.*

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

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. Porting the LLVM 6 modification of x86-SoK to LLVM 16.*
- *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

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) and ML models on previously created dataset*
- *The project paper is published in 17th Workshop on Building and Using Comparable Corpora Co-located with LREC-COLING 2024*

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).

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.

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 low level security. We participate in various CTF contests under the same name of our research group. **Team [NMOSS](#).** Link: [nmoss.pages.dev](#)

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.