Nofil Qasim

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Research Interests

My research interests lie in the intersection of computer security and low-level systems. I am interested in the security vulnerabilities posed by systems and language design flaws, and how they can be exploited. Examples of such vulnerabilities include Spectre, Meltdown and PACMAN, and, flaws in the WebAssembly specification which I am currently investigating.

Education

PUCIT - University of the Punjab   September, 2019 – Present
Bachelor of Science - Computer Science   Lahore, Punjab, Pakistan
- Expected graduation: July 2023
- GPA: 3.54/4.0

Lahore Grammar School Johar Town   2017 - 2019
A Level   Lahore, Punjab, Pakistan

Aitchison College   2007 - 2017
O Level   Lahore, Punjab, Pakistan

Research Experience

A Novel Approach to Applying x86-64 Exploitation Techniques on WebAssembly Binaries
November, 2022 – Present
PUCIT - University of the Punjab
- Supervisor: Dr. Muhammad Arif Butt
- Formulated the idea and initiated the research project
- Discovered differences between WebAssembly Modules built from the same source
- Worked on problems related to fuzzing WebAssembly binaries
- Working on identifying ways to reuse x86-64 exploitation techniques on WebAssembly binaries

Salient Features of the MIPS32/64 Architecture and A Handy Guideline to its Assembly Programming
September, 2022 – Present
PUCIT - University of the Punjab
- Supervisor: Dr. Muhammad Arif Butt
- Worked on the final draft of the paper

Professional Experience

Malware Researcher   November, 2021 – Present
Ebryx (Pvt.) Ltd.   Lahore, Punjab, Pakistan
- Worked on Linux Usermode and Kernel Exploitation
- Windows Kernel Exploit PoC Testing
- Initial Access and Malware Deployment Techniques
- AV and EDR Evasion Techniques
- Red Team Capability Development (C2, Phishing, etc.)
- Security Mechanism Bypassing Techniques (Applocker, etc.)

Teaching Assistant (Operating Systems)
PUCIT - University of the Punjab

February, 2022 – October, 2022

Lahore, Punjab, Pakistan

- Designed material and coursework for the newly introduced lab component of the subject
- Designed exam papers for the lab
- Assisted students in the lab + other TA responsibilities

Information Security Intern
Systems Limited

July, 2021 – September, 2021

Lahore, Punjab, Pakistan

- Level 1 Security Operations Center (SOC) Analysis
- Web Application Penetration Testing

Teaching Assistant (Computer Organization and Assembly)
PUCIT - University of the Punjab

February, 2021 – June, 2021

Lahore, Punjab, Pakistan

- Redesigned lab material for the semester
- Assisted students in the lab + other TA responsibilities

Interesting Projects

WASM Research Documentation
WebAssembly, C, Rust

https://github.com/papadoxie/WASM-Research-Docs

- A collection of research papers and documentation on WebAssembly
- Includes a detailed account of my research on WebAssembly

OS Development
C, x86-64 Assembly

https://github.com/papadoxie/Operating-System

- A hobby Operating System with the design philosophy of supporting all major platforms

Extracurriculars & Volunteering

Cyber Security Lead
Google Developer Student Clubs

PUCIT - University of the Punjab

2020 – 2021 & 2022 – Present

- Conducted workshops on Cyber Security and low-level systems
- E.g. Intro to Security, Deep Dive into C Programming, Memory Corruption and Buffer Overflows.

University Lead
BSides Pakistan

BSides International

2020 – Present

- Responsible for building a community of security enthusiasts at my University

Mentor and Helper
Helping Hands Society

PUCIT - University of the Punjab

2020 – Present

- Helped students with their coursework and assignments
- Mentored students in their projects
- Helped students with core concepts of their subjects

Co-Founder
Cyber@PU - Unofficial PUCIT Cyber Security Community

PUCIT - University of the Punjab

2021

- Faculty Contact: Dr. Muhammad Arif Butt
- Organized a CTF team for the first time in PUCIT
- Work with GDSC PUCIT to organize workshops and seminars

Skills

Programming Languages: C, Python, Java, C#, Rust, x86-64 Assembly, LaTeX
Security: Binary Exploitation, Reverse Engineering, Malware Development
Tools: Ghidra, Radare Cutter, GDB, GNU/Make
OS: GNU/Linux, Windows + WSL

Courses & MOOCs

Malware Analysis: TryHackMe
Incident Response and Forensics: TryHackMe
Reverse Engineering 101: Malware Unicorn
Introduction to CyberSecurity Tools & Cyber Attacks: IBM + Coursera