

Ali Raza

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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 formal specifications, and how they can be exploited. For now, I am working on my FYP thesis that is about reproducing CVE-2019-2215 which is the Use After Free vulnerability in Android Kernel's Binder IPC subsystem.

Education

PUCIT - University of the Punjab
Bachelor of Science - Computer Science
• Expected graduation: July 2023
• GPA: 3.65/4.0

September, 2019 – Present
Lahore, Punjab, Pakistan

Punjab Group of Colleges, Okara Campus
Intermediate of Computer Science with Physics

2017 - 2019
Okara, Punjab, Pakistan

- Graduated with 3rd position in BISE Sahiwal.

Research Experience

Vulnerability Research and Exploit Development for Android Kernel

July, 2022 – Present

PUCIT - University of the Punjab

- Supervisor: Dr. Muhammad Arif Butt
- Formulated the idea and initiated the research project
- Worked on problems related to memory errors in binaries
- Working on analysing Linux kernel

Professional Experience

Teaching Assistant (Operating Systems)

PUCIT - University of the Punjab

- 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

October, 2022 – Present

Lahore, Punjab, Pakistan

Programming Tutor

Freelance on Fiverr

- Teaching low level programming concepts in C
- Teaching object oriented programming in C++

April, 2022 – Present

Fiverr.com

Skills

Programming Languages: C, Python, Java, C#, x86-64 Assembly

Security: Binary Exploitation, Reverse Engineering

Tools: IDA, GDB, GNU/Make

OS: GNU/Linux, MacOS, Windows + WSL

Projects

Unix Shell

C, Makefile

<https://github.com/alirazamumtaz/unix-shell>

- Basic *nix shell with some builtin commands

Exploits Scripts

Python, x86 Assembly

<https://github.com/alirazamumtaz/exploit-development>

- Basic scripts that I have written to solve some exploitation challenges

Hack Assembler

C++

<https://github.com/alirazamumtaz/hack-assembler>

- An assembler for hack assembly

Courses & MOOCs

Computer Systems Security: pwn.college

- Shellcode Injection
- Sandboxing
- Reverse Engineering
- Memory Errors
- Race Conditions
- Kernel Security
- Program Exploitation

Extracurriculars & Volunteering

Club Leader

PUCIT - University of the Punjab

Google Developer Student Clubs

2021 – 2022 & 2022 – Present

- Faculty Contact: Assist. Prof. Abdul Mateen
- Organized tech workshops and seminars
- E.g. CodeFest, Hacktoberfest, etc

Event Organiser

PUCIT - University of the Punjab

Event Management Society

2020 – 2021 & 2022 – Present

- Organized inter-college events
- E.g. Job Fair, Trips, etc

Awards & Honors

Board Topper

2019

Intermediate - BISE Sahiwal

Sahiwal, Pakistan

- <https://pgc.edu/our-achievers/>
- Awarded with a brass medal and a cash prize by the Board of Intermediate and Secondary Education, Sahiwal