

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 <ul style="list-style-type: none">Expected graduation: July 2023GPA: 3.65/4.0	September, 2019 – Present Lahore, Punjab, Pakistan
Punjab Group of Colleges, Okara Campus Intermediate of Computer Science with Physics <ul style="list-style-type: none">Graduated with 3rd position in BISE Sahiwal.	2017 - 2019 Okara, Punjab, Pakistan

Research Experience

Vulnerability Research and Exploit Development for Android Kernel July, 2022 – Present PUCIT - University of the Punjab <ul style="list-style-type: none">Supervisor: Dr. Muhammad Arif ButtFormulated the idea and initiated the research projectWorked on problems related to memory errors in binariesWorking on analysing Linux kernel
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Professional Experience

Teaching Assistant (Operating Systems) PUCIT - University of the Punjab <ul style="list-style-type: none">Designed material and coursework for the newly introduced lab component of the subjectDesigned exam papers for the labAssisted students in the lab + other TA responsibilities	October, 2022 – Present Lahore, Punjab, Pakistan
Programming Tutor Freelance on Fiverr <ul style="list-style-type: none">Teaching low level programming concepts in CTeaching object oriented programming in C++	April, 2022 – Present Fiverr.com

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
2021 – 2022 & 2022 – Present

Google Developer Student Clubs

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

Event Organiser

PUCIT - University of the Punjab
2020 – 2021 & 2022 – Present

Event Management Society

- 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

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