

# Ali Raza

Lahore, 54590  
Punjab, Pakistan  
+92 305 7381431

Github: [alirazamumtaz](#)  
LinkedIn: [alirazamumtaz](#)  
Webiste: [alirazamumtaz.github.io](#)  
Email: [elirazamumtaz@gmail.com](mailto:elirazamumtaz@gmail.com)

## Research Interests

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Interested in finding security vulnerabilities posed by Operating Systems and how they can be exploited. As a Malware Researcher at Ebryx, I focus on Linux Kernel Exploitation, specializing in n-day research. I aim to transition towards zero-day discovery and proficiently craft Proof of Concepts (PoC) and exploits for the Linux Kernel.

## Education

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<b>PUCIT - University of the Punjab</b> Bachelor of Science - Computer Science <ul style="list-style-type: none"><li>Graduated with CGPA 3.65/4.0</li></ul>	October, 2019 – July, 2023 Lahore, Punjab, Pakistan
<b>Punjab Group of Colleges, Okara Campus</b> Intermediate of Computer Science with Physics <ul style="list-style-type: none"><li>Graduated with 3rd position in BISE Sahiwal.</li></ul>	August, 2017 - September, 2019 Okara, Punjab, Pakistan

## Research Experience

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### **Oday Day in zlog (Famous pure C logging library) - CVE-2024-22857**

November, 2023 – Present

Ebryx (Pvt.) Ltd.

- Collaborator: [Faran Abdullah](#)
- Found bug in zlog
- Wrote PoC
- Submitted to MITRE
- Reserved CVE number - [CVE-2024-22857](#)
- Submitted to zlog maintainers and waiting to be published

### **Vulnerability Research and Exploit Development for Android Kernel**

July, 2022 – July, 2023

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
- Worked on reversing binaries using IDA Freeware
- Worked on chroot jailbreak
- Worked on analyzing Linux kernel
- Worked on analysing msg\_msg as exploit primitive
- Done with analysis of CVE-2019-2215

## Professional Experience

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### Malware Researcher

March, 2023 – Present

Ebryx (Pvt.) Ltd.

Lahore, Punjab, Pakistan

- Working on Kernel nday research
- Tools: elixir by bootlin, build root, GDB, QEMU, etc.
- Recognitions: Annual Best Performance Award 2023

### Teaching Assistant (Operating Systems)

October, 2022 – February, 2023

PUCIT - University of the Punjab

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

## Skills

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**Programming Languages:** Assembly, C

**Security:** Binary Exploitation, Reverse Engineering, n-day Research, PoC writing

**Tools:** elixir by bootlin, IDA Pro, GDB, GNU/Make

**OS:** MacOS, Linux

## Projects

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### Unix Shell

C, Makefile

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

- An effort to write the \*nix-based shell to gain an understanding of how the shell works and how OS creates and handles processes and allows processes to communicate with each other through its IPC interface

### 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>

- A 16-bit machine language assembler for the 16-bit Hack Assembly Language. It was done as part of building a complete 16-bit computer during the Computer Organization Assembly Language Course

## Courses & MOOCs

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### Computer Systems Security: [pwn.college](https://pwn.college)

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

## Extracurriculars & Volunteering

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### Club Leader

Google Developer Student Clubs ([g.dev/alirazamumtaz](https://g.dev/alirazamumtaz))

- Faculty Contact: Assist. Prof. Abdul Mateen
- Organized tech workshops and seminars

PUCIT - University of the Punjab  
2021 – 2022 & 2022 – 2023

### President

PUCon'23 ([pucon.vercel.app](https://pucon.vercel.app))

- Faculty Contact: Assist. Prof. Abdul Mateen
- Organized programming competitions and CTFs

PUCIT - University of the Punjab  
2023

## Awards & Honors

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### Board Topper

Intermediate - BISE Sahiwal

- (<https://pgc.edu/our-achievers>)

- Awarded with a brass medal and a cash prize by the Board of Intermediate and Secondary Education, Sahiwal

2019

Sahiwal, Pakistan