

Experience

- Jan 2024 – **Software Engineering Intern**, *Arista Networks*, Pune, India
Present Working with the wifi-cloud team on performance optimization and scaling.
- May 2023 – **GSoC Contributor**, *OSPO UC Santa Cruz*, Remote
Aug 2023 Working on implementing io_uring based communication backend for network based key-value store. <https://summerofcode.withgoogle.com/programs/2023/projects/7WPESTT0>
- May 2023 – **Software Engineering Intern**, *Arista Networks*, Pune, India
July 2023 Worked with the wifi-cloud team, helped in migration of the infrastructure from CentOS to almalinux. Contributed in containerization of old monolithic products.
- Feb 2023 – **Teaching Assistant: Microprocessors and Interfacing**, *BITS-Pilani, Goa Campus*
May 2023 Helped junior students with the subject.
Conducted and helped evaluate labs, using DOSBOX and MASM assembler.

Education

Academic Qualifications

- 2020-2024 **Computer Science (Bachelors degree)**, *Birla Institute of Technology and Science - Pilani, Goa Campus, India, CGPA:7.88*

Projects

- **Mandelbrot set plotter** '*Image processing, Rust, multi-threading*'
A multi-threaded program written in rust(using crossbeam and rayon) to plot mandelbrot set, given the image resolution and two complex numbers that map the top left and the bottom right of the image. <https://github.com/manank20/mandlebrot>
- **nesemu** '*emulator, Microprocessor (6052)*'
A NES(Nintendo Entertainment System) emulator written in rust with minimal functionality, emulating all instructions from 6502 instruction set with all the addressing modes, and buses(incomplete).
<https://www.github.com/manank20/nesemu>

Research Experience

May 2022 - **Undergrad Research Student**, *DaSH Lab*, Computer Science and Information Systems(CSIS),BITS Goa,India
Dec 2023

- Worked with Prof. Arnab K. Paul on `io_uring` and its applications in reducing latency and increasing efficiency in data management. Specifically, comparing IO in various application-specific workloads such as software-level caches, key-value stores, and databases. Analyzing and benchmarking various applications that have adopted different approaches to IO using tools like `bpf`, `perf`, `flame graphs` etc.

Technical skills

- **Computer Systems and Linux:** Contributor to the Linux kernel (small bugfixes). Interested in computer systems, Linux kernel development, driver development and low level programming in C and assembly. Linux and open source enthusiast with intermediate experience(4+ years) in linux and various distributions like Debian, Arch and fedora.
- **Reverse Engineering:** Intermediate experience of Rev, using tools like `gdb`, `radre2`, `cutter`, `IDA` and `ghidra` and a good understanding of x86 assembly language.
- **Programming Languages:** Proficient in: C, bash, Rust, Assembly
Also basic ability with: C++, Python, Java.
- **Digital Forensics:** Beginner to intermediate experience in digital forensics from participating in various CTFs and using tools like `autopsy`, `foremost`, `scalpel` etc.
- **Misc:** Tools like `git`, `github`, `ssh`, `vim`, `qemu`, `wireshark`, `aws`, cloud computing, `openvpn`, etc.

Interests and extra-curricular activity

- Used to learn guitar(I have a Yamaha F310 acoustic) for about a year.
- I am also the Chief Coordinator for The Department of Photography, BITS Goa. We handle all the three student run fests in the Institute, and make aftermovies for them. Check out our Youtube and Instagram
- I like taking portraits and wildlife photography (though I did not have any chance to visit any sanctuary till now, I visited Gir, but did not have a camera back then).I have a Nikon D5300 with 18-55mm and 70-300mm telephoto.

References

- Dr. Arnab K. Paul - Assistant Prof., CSIS, BITS - Pilani, Goa.
Mail:arnabp@goa.bits-pilani.ac.in
Web: <https://arnabkrpaul.github.io>