

BILAL NAEEM

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EDUCATION

Purdue University, West Lafayette, USA

Aug 2024

Master of Science in Computer Science; GPA: **3.76**

- Relevant Courses: Operating Systems, Compilers, Software Engineering, Network Security, Software Security

Lahore University of Management Sciences (LUMS), Lahore

May 2021

Bachelor of Science in Computer Science; GPA: **3.62** (Dean's Honor List, Distinction)

- Relevant Courses: Data Structures, Deep Learning, Algorithms, Databases, Distributed Systems

TECHNICAL SKILLS

Languages: C, C++, Node.js, React.js, Javascript, Rust, Python, C#, SQL, Go, Bash

Frameworks: Git, Kubernetes, Docker, LLVM, RESTful API, eBPF, Glibc, Gtk, .NET, QT, Unity

Systems: Linux, Unix, QEMU/KVM, VT-x, Kata Containers, CRI-O, SSL/TLS, AWS, GCP

PROFESSIONAL EXPERIENCE

Purdue Reliable and Secure Systems Lab, West Lafayette, USA

June 2021 – Dec 2023

Software Engineer

- Led two members on HyperODF team, achieving **millisecond scale startups** for hardware-accelerated virtual machines.
- Submitted **two** different lab projects at top tier systems and programming language conferences, working in a fast paced environment.
- Contributed to opensource development and upstream integration of On-Demand Fork feature for Linux Kernel.

LUMS Internet Security and Privacy Lab, Lahore

Aug 2019 – June 2021

Software Engineer

- Devised a framework for automated playthrough and security testing of Android applications. Identified security and privacy breaches in over **100+** Android applications.
- Designed comprehensive tutorials on advanced programming and security paradigms for lab members.
- Contributed to an automated benchmarking system for software debloating tools, solved **two** critical bugs in system, and benchmarked multiple state of art debloating tools.

Softtronix, Lahore

Dec 2019 – Feb 2020

Software Engineer

- Developed server-side APIs and Windows services for a Enterprise Sales Application in C#/.NET, used by over **150,000** people.
- Spearheaded integration of newly built APIs with company's legacy SQL database.

PROJECTS

VR Fitness App | C#, Unity, LLM, AI

April 2024 – May 2024

- Used redirection to provide progressive overload of **5-10%** over time for squats, and crunches in VR.
- Adapted to user performance using OpenAI ChatGPT API, increasing user motivation by **50%**.

HyperODF | Kernel Programming, QEMU/KVM, Kubernetes, Docker, C, Go

Aug 2021 – Dec 2023

- Dramatically reduced VM clone time by **98%**, from 1.5s to **20ms**, through an innovative fork mechanism for QEMU/KVM VMs, leveraging in-memory snapshots and CoW page table copying of VM page tables.
- Enabled millisecond-scale startup of hardware-accelerated VMs and contributed to fast VM-based pods deployment for Kubernetes.
- Developed a customizable GDB script system for real-time debugging, reducing bug fixing effort by **10x**.

Madadgaar | Javascript, React, Firebase, Firestore, Fullstack

May 2020 – Aug 2020

- Connected multiple hospitals and blood banks to platform, facilitating over **100 successful blood donations**.
- Launched a social platform to bridge blood donors with recipients, achieving a pivotal match within 24 hours of going live and pioneering SMS-based services for broader user access.
- Managed a team of **7** in API integration for site using **Agile methodologies**, collaborating with cross-functional teams to enhance UI/UX, resulting in a **twofold increase** in user engagement during internal testing.