

MUHAMMAD BILAL NAEEM

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EDUCATION

Purdue University <i>Master of Science in Computer Science; GPA: 3.78</i> – Relevant Courses: Operating Systems, Compilers, Intro to AR/VR, Software Security	West Lafayette, IN 2024
Lahore University of Management Sciences (LUMS) <i>Bachelor of Science in Computer Science; GPA: 3.62 (Dean's Honour List)</i> – Relevant Courses: Deep Learning, Network-Centric Computing, Advanced Programming	Lahore, Pakistan 2021

PROJECTS

HyperODF <i>Kernel Programming, QEMU/KVM, Kubernetes, C, Go, Rust</i> – 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. – Enabled millisecond-scale startup of VM-based sandboxes in Kubernetes environments, significantly improving cloud computing efficiency.	August 2021 – Dec 2023
Recollect <i>C, Python, Bash, AFLGo</i> – Engineered a novel system to reproduce bug-inducing inputs from incomplete reports, boosting AFLGo's efficiency in producing failure inputs by 9-200x.	April 2022 – Nov 2023
Madadgaar <i>TypeScript, React, Firebase, Firestore</i> – 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.	May 2020 – Aug 2020

EXPERIENCE

Purdue Reliable and Secure Systems Lab <i>Systems Researcher</i> – Led the HyperODF project, pioneering advancements in virtualization and serverless computing with rigorous testing and debugging protocols. – Directed experimentation and testing for Recollect, enhancing software reliability through innovative debugging approaches.	West Lafayette, IN June 2021 – Dec 2023
Purdue University <i>Graduate Teaching Assistant</i> – Oversaw the Systems Programming course, contributing extensively to the Operating Systems course, reducing testing time 100x using optimized parallel testbench.	West Lafayette, IN May 2022 – Present
SRI International <i>Intern</i> – Contributed to an automated benchmarking system for software debloating tools, streamlining software maintenance and bolstering security.	Remote Jan 2021 – June 2021
LUMS Internet Security and Privacy Lab <i>Systems Researcher</i> – Devised a framework for automated playthrough and security testing of Android mobile games, uncovering privacy and security vulnerabilities.	Lahore, Pakistan Aug 2019 – June 2021
Softronix Inc. <i>Intern</i> – Developed server-side APIs and Windows services for a salesman management app, used by over 150,000 people.	Lahore, PK Dec 2019 – Feb 2020

TECHNICAL SKILLS

Languages: C, C++, Python, Go, C#, JavaScript, HTML/CSS, Rust, R
Frameworks/Tools: Kubernetes, OpenFAAS, Docker, LLVM, Git, React, Glibc, Node.js, ASP.NET, Unity
Systems: Linux, QEMU/KVM, Kata Containers, CRI-O, AFL, AFLGo