

Abdullah Naveed

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EDUCATION

University of Florida

Ph.D. Candidate in Computer Engineering | GPA: 3.93/4.00

Expected May 2027

Gainesville, FL

University of Iowa

Master of Computer Science | GPA: 3.99/4.00

Aug 2023 – Aug 2025

Iowa City, IA

Lahore University of Management Sciences

B.S. in Computer Science | GPA: 3.61/4.00

Aug 2019 – May 2023

Lahore, Pakistan

EXPERIENCE

Argonne National Laboratory

Visiting Graduate Researcher

Jun 2025 – Present

Lemont, IL

- Designed an end-to-end **FPGA/CPU scientific data-compression framework**, achieving up to **19.8× cycle speedup** over matched software and **46–65% lower end-to-end workflow time**.
- Developed a **modular Chisel/RTL compression library** for composing system-optimized pipelines, supporting LZ4, Snappy, StreamVByte, SZ3, SZp, SZx, zfp, and extensible new designs.

University of Florida

Graduate Research Assistant, Dependable Systems Lab

Aug 2025 – Present

Gainesville, FL

- Developed **TRACE**, a runtime detector for silent data corruption during large language model (LLM) inference, achieving **95.3% average detection coverage** across 15 LLMs and 3 datasets with **0.56% runtime overhead**; paper accepted at SC26.
- Characterize **LLM resilience to transient hardware faults** during inference and pretraining, and in models fine-tuned with **LoRA, QLoRA, LoRA-FA, and DoRA**, analyzing sensitivity to fault intensity and parameter corruption.

University of Iowa

Graduate Research Assistant

Aug 2023 – Aug 2025

Iowa City, IA

- Developed an **LLVM-based silent-error detector** for scientific and HPC applications, achieving **86.19% average detection coverage at 4.90% runtime overhead** across 15 benchmarks.
- Compared **compiler- and runtime-based error-detection techniques** across scientific workloads, analyzing their behavior under different fault-propagation patterns and quantifying trade-offs between **detection coverage and runtime overhead**.

TECHNICAL PROJECTS

- DebloatBench / BloatProfiler** — developed an extensible **Python and Docker benchmarking framework** for container debloaters, measuring attack-surface reduction, vulnerability mitigation, image-size reduction, and functional correctness; **published at IEEE SecDev 2023**.
- Multimodal Fake News Classification** — developed and benchmarked text–image classifiers using **BERT, CNN vision models, and multimodal fusion**, comparing approaches with accuracy, precision, recall, and F1.
- LUMS Mobile App** — developed a cross-platform student application using **React Native, JavaScript, and Firebase**, integrating deadline management, GPA tracking, communication, and real-time cloud-backed data.

PUBLICATIONS

- Low-Overhead Silent Error Detection for Large Language Model Inference at Scale*. SC26. **Accepted; to appear**.
- Z-SPDK: Accelerating Lossy Compressed I/O on NVMe-SSDs*. SC26. **Accepted; to appear**.
- Evaluating Container Debloaters*. IEEE SecDev, 2023.

TECHNICAL SKILLS

Programming: Python, C, C++, JavaScript, SQL, Bash, Git

Machine Learning / Data: PyTorch, Hugging Face Transformers, TensorFlow/Keras, scikit-learn, OpenCV, Pandas

Systems / HPC: LLVM, Linux, Docker, MPI, OpenMP, Slurm, fault injection, parallel computing

Hardware: Chisel, Verilog/RTL, RISC-V, Chipyard, Verilator, Vivado

Software Development: React, React Native, Firebase, HTML/CSS