UMER FAROOQ

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SUMMARY

Systems-focused computer science professional with specialized experience in High Performance Computing (HPC), Parallel and Distributed Computing (PDC), GPU acceleration, and Quantum Computing. Proven track record of optimizing computational workloads with up to 6× performance improvements through advanced parallel programming, CUDA optimization, and hybrid computing architectures. Strong expertise in AI/ML acceleration and quantum circuit simulation.

WORK EXPERIENCE

Freelance Developer   **August 2023 - August 2024**

- Developed 2D games in C/C++ using OOP and performance optimizations (memory/algorithmic efficiency), skills transferable to GPU programming and low-level HPC.
- Collaborated with diverse technical teams on 30+ projects, refining communication skills critical for quantum/HPC project coordination and parallel development workflows

EDUCATION

Bachelor of Computer Science   **August 2022 - Present**

National University of Computer and Emerging Sciences, Islamabad, Pakistan

- Awarded Dean's List in Spring 2023

PROJECTS

- **GPU-Accelerated Canny Edge Detection:** Accelerated edge detection 3.5x using CUDA with memory optimizations vs. serial execution.
- **MNIST Classification with Tensor Cores:** Optimized neural network inference time by 600% via CUDA/Tensor Core memory hierarchy tuning.
- **Parallel Tensor Network Quantum Simulator:** Enhanced quantum simulator scalability and performance via hybrid MPI/OpenMP strategies and CUDA/OpenCL GPU acceleration.
- **Distributed Grayscale Conversion:** Reduced latency by 55% in OpenMP-based parallel grayscale processing for high-res images.

KEY SKILLS

- **Programming Languages:** C/C++, Python
- **Parallel & Distributed Computing**: MPI, OpenMP, hybrid programming (MPI+OpenMP), distributed workload scheduling
- **High Performance Computing:** CUDA, Tensor Core Optimization, OpenCL, Multi-GPU architectures, Profiling Tools such as Nsight
- **Machine Learning:** TensorFlow, PyTorch, GPU-accelerated model training, Hyperparameter optimization
- **Quantum Computing:** Qiskit, Quantum circuit simulations

INTERESTS

- GPU Architecture & Low-Level Optimization
- Compiler Design & Language Theory
- Quantum Simulation
- Parallel & Distributed Systems