Syed Muhammad Taha

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Profile

Computer Science student focused on high-performance computing, low-level system optimization, and scientific simulation. Experienced in building systems from the kernel up, conducting research, and optimizing algorithms for resource-constrained environments.

Technical Skills

Programming Languages:	C++, Python, RISC-V Assembly, Bash, JavaScript
High-Performance Computing:	CUDA (Basic), Vectorization, Multi-threading, Performance Profiling
Scientific Computing & ML:	TensorFlow, PyTorch, NumPy, Pandas, Matplotlib, Scikit-learn
Systems & Development Tools:	Linux, Git, GitHub Actions, LaTeX, SFML

Professional Experience

Teaching Assistant - Computer Architecture Jan 2026 – Present
Institute of Business Administration, Karachi

- Supervising student projects on RISC-V assembly programming, vectorized implementations, and state space models, providing technical mentorship on low-level optimization techniques.
- Grading assignments and assessments while maintaining consistent academic standards across course deliverables.
- Supporting course delivery through lab facilitation and one-on-one student consultations on assembly programming and hardware-level optimizations.

Teaching Assistant - Introduction to Programming & OOP Aug 2024 – Dec 2025
Institute of Business Administration, Karachi

- Facilitated weekly lab sessions for 100+ students, providing technical guidance on problem-solving, debugging, and core programming concepts in C++.
- Developed and organized lab materials, supporting continuous improvement in course delivery and student engagement.

Software Engineering Fellow Jul 2024 – Sept 2024
Headstarter AI Remote

- Delivered 5 AI-powered web apps in 5 weeks using React/Next.js, Firebase, Clerk, and Vercel under weekly agile sprints with CI/CD—scaled each to 200+ users and launched an IBA teacher-review portal with 300 waitlist sign-ups.
- Co-developed a Next.js customer-support agent with a custom OpenAI+Pinecone RAG pipeline and a GPT-4o–powered flashcard SaaS; participated in weekly innovation sessions with engineers from Google, Y Combinator, Stanford, Amazon, and top startups.

Research & Technical Projects

LLM Inference Optimization in the xv6 Educational OS *Research Project*

Ported LLaMA-2 inference engine to xv6 OS by implementing user libraries, network stack, multithreading, and shared memory, achieving ∼16 tokens/sec on RISC-V.

Vectorized CNN Inference on 32-bit RISC-V Cores *Research Paper (Under Review)*

Implemented complete CNN in RISC-V assembly with Vector Extension (RVV), achieving 7.3x speedup through im2col+GEMM and FP16 compression.

High-Performance Othello AI with MCTS & Optimized CNNs *Research Project*

Developed deep RL AI integrating Monte Carlo Tree Search with optimized CNNs, achieving 50% model size reduction and 10x speed improvement.

Education

Institute of Business Administration (IBA), Karachi Expected May 2027
Bachelor of Science in Computer Science GPA: 3.52/4.0
Relevant Coursework: Computer Architecture, Operating Systems, Machine Learning, French 1.