Muhammad Wasay

+92-303-2823122 wasay@pakistansupercomputing.com linkedin.com/wasaytahir Portfolio

Education

Namal University Expected June 2025
Bachelor of Science in Computer Science *Mianwali, Pakistan*

- **CGPA:** 3.84 / 4.00
- Relevant coursework: Data Structures and Algorithms, Software Engineering, Machine Learning

Technical Skills

Programming Languages: Python, C++, C, Javascript
Tools & Technologies: TensorFlow, Scikit-learn, PyTorch, Hugging Face, LangChain, Git, GitHub, MySQL, NumPy, Pandas, Matplotlib, Seaborn, Tkinter, Horovod, MPI, React Js, Express Js, Tailwind CSS, HTML

Experience

Center for AI and Big Data Oct 2023 - Present
Student Research Assistant *Namal University, Mianwali*

- Led a supercomputing project, developing a high-performance computing environment for AI and big data research. Implemented large language models (LLaMA-7B), optimizing system performance with fine-tuning.
- Supported the delivery of a supercomputing and parallel programming spring school, and a summer school on embedded computing, providing technical knowledge and practical skills to students.

DreamBig Semiconductor Inc. July 2024 - September 2024
Software Engineering Intern *Karachi*

- Worked on embedded programming, focusing on RDMA and Smart NICs. Gained hands-on experience with GNS3, kernel drivers, and network drivers, enhancing low-level programming skills and optimizations.

EZMD Medical June 2024 - Present
Front-End Developer and UI Engineer Intern *Islamabad*

- Developing an end to end solution with a team on our own a web portal as an admin dashboard and apps for clients, vendors, and delivery personnel, enhancing user experience and functionality.
- The App will be used in USA, to manage complex relation of patients and health insurances. As the project is still in progress, and i work on it as a remote-intern so disclosing more details is not feasible for now.

Projects

RISC-V Heterogeneous HPC Cluster Development

- Developed a fully operational, low-power HPC cluster using the RISC-V StarFive VisionFive2 platform with Intel NUC edge device as head node, optimized for energy and computational efficiency, and scalability, achieving a 55% improvement in processing speed for large matrix computations.
- Integrated Wazuh-based SIEM for real-time security monitoring and federated learning techniques using medical data for decentralized AI model training, enabling privacy-preserving machine learning and collaborative research across multiple institutions.

Multimodal Network Anomaly Detection System | *TensorFlow, Scikit-learn, Matplotlib, Pandas*

- Designed and implemented a system for detecting anomalies in multimodal data streams, including system logs and network packets.
- Used machine learning techniques such as classifier algorithms and neural networks to identify unusual patterns.
- Contributed to research on new anomaly detection techniques.

JPEG Image Compressor | *NumPy, Pillow, OpenCV, Pandas, Matplotlib, Tkinter*

- Implemented an image compression algorithm to reduce the file size of JPEG images while preserving image quality.
- Utilized techniques such as discrete cosine transform and Huffman coding to achieve efficient compression ratios.

Conway's Game of Life | *C++, Raylib*

- Created a simulation of Conway's Game of Life using C++ and Raylib for graphical rendering.
- Implemented interactive controls to allow users to modify the grid and observe the evolution of cell patterns in real-time.