RAJA SAIF ALI
BACHELOR IN COMPUTER SCIENCE

Phone: +92 318 558 91 84 | rajasaif45890@gmail.com | Github: Raja_Saif
LinkedIn: https://www.linkedin.com/in/raja-saif-01702329a/

PROJECTS:

MNIST Neural Network Acceleration on GPU (C/CUDA)
- Implemented a GPU-accelerated neural network for MNIST digit classification using CUDA in C/C++. Optimized matrix operations with custom CUDA kernels for parallel training and inference, achieving significant runtime reduction over CPU-based approaches.

Autonomous Driving Model for TORCS (Python, LSTM)
- Developed an LSTM-based behavioral cloning model for autonomous driving in the TORCS simulator. Automated telemetry data collection to build a dataset of 1M+ samples, enabling the model to learn control strategies and race competitively against AI opponents.

IPFS-Based Distributed File Storage using Ring DHT (C++, SHA-1, B-Trees)
- Implemented a simplified IPFS model using a configurable Ring DHT with SHA-1-based content addressing. Simulated geo-distributed file storage across machines, using B-Trees for local indexing and modular routing tables for efficient $O(\log(N))$ lookup. Supported real-time file insertion/removal, dynamic node joining/leaving, and complete path traceability across the network.

Online Quiz Management System (Django, SQLite, HTML/CSS/JS)
- Built a full-stack web platform to support automated quiz scheduling, grading, and performance tracking. Integrated Django for the backend and SQLite for persistent storage; designed responsive UI for seamless teacher-student interaction.

GYM Autonomous System (JavaFX, FXML, JavaScript)
- Created a desktop application for gym activity tracking. Enabled user registration, personalized training plans, and trainer-student management. Employed JavaFX with FXML for the UI and Java for backend logic, simulating real-world system automation.

Parallel IST Construction in Bubble-Sort Networks (C++, OpenMP, MPI, METIS)
- Engineered a fully parallel algorithm (complexity $O(n \cdot n!)$) for constructing independent spanning trees in Bubble-Sort Networks. Utilized OpenMP and MPI for hybrid parallelism and METIS for optimized graph partitioning, demonstrating scalable high-performance computing.

EDUCATION

FAST, NUCES Islamabad | 2022-2026
Bachelor of Science in Computer Science
- 6 Semesters in

The PEACE Group of School and Colleges Mansehra | 2020-2022
Fundamental of Sciences in Pre-Engineering
- Percentage: 92.18%

TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, JavaScript, MASM, C#
ML & Deep Learning: LSTM, Behavioral Cloning, CUDA Acceleration
Frameworks & Libraries: CUDA Toolkit, Django, SFML, JavaFX, FXML, OpenMP, MPI, METIS
Web Development: HTML, CSS, JavaScript (Frontend), Django (Backend)
Databases: SQLite, MongoDB, SQL
Tools & Technologies: Git, Jupyter Notebook, Visual Studio, IntelliJ IDEA
Game Development: Collision Detection, Particle Systems, AI Behavior Design

INTERESTS

AI/ML & Computer Vision: Deep learning for image recognition, object detection, and semantic segmentation.
Image Processing: Techniques for image enhancement, feature extraction, and pattern recognition. High-
Performance Computing: Leveraging CUDA and parallel computing for scalable AI solutions