Muhammad Anas Khan

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Objective:

Computer Science student (completed 6th semester) with foundational experience in web development using MySQL, PL/SQL, and Express.js, and a growing interest in cross-platform app development using Flutter. Also passionate about Machine Learning and Deep Learning. Seeking a software engineering internship to contribute to real-world projects and build scalable, intelligent systems.

Education:

- **Bachelor of Computer Science**, FAST - National University of Computer and Emerging Sciences Khi (2022-Present)
  CGPA: 3.04
- **Pre-Engineering Intermediate**, Govt. Degree Malir Cantt College (2019-2021)
- **Matriculation** SOS Hermann Gmeiner School (2017-2019)

Technical Skills:

- **C/C++**
- **Python**
- **MySQL, PostgreSQL**
- **Express.js**
- **HTML, CSS, JavaScript**
- **OOP**
- **Algorithm analysis**
- **Linux**
- **Communication skills**
- **Git**
- **Teamworking**
- **Software Engineering Principles**
- **Bilingual:**
  * **Urdu**
  * **English**

Projects:

- **Backend Development – Multi-Store Inventory Management System (2025)**
  - Developed a **scalable Express.js backend** with **JWT authentication**, handling 500+ stores, enabling secure access control and role-based permissions for store managers and admins.
  - Designed and optimized a **PostgreSQL database** with centralized product cataloging and storespecific inventory tracking.
  - Implemented **caching (Redis)** and **asynchronous read/write operations** to improve API response times, ensuring high performance during peak transaction loads.
  - GitHub: Kiryana Store Web Backend

- **Deep Learning Model – Bacterial Colony Classification (2025)**
  - Built an image classifier using EfficientNetB0 with transfer learning, trained on a 33-class bacteria dataset in TensorFlow/Keras (Google Colab), achieving ~14.5% training accuracy
  - Preprocessed dataset by removing corrupt images, applying augmentation, and resizing inputs to 224×224 for improved generalization.
  - Created a Streamlit prototype for image upload and prediction; analyzed overfitting and visualized performance with training/validation curves.
  - GitHub: Bacteria-Classifier

- **Frontend Project – Snakey: Classic JavaScript Snake Game (2025)**
  - Built a fully responsive canvas-based Snake game using vanilla JavaScript, HTML5, and CSS to practice frontend fundamentals and dynamic UI manipulation.
  - Implemented real-time keyboard controls, difficulty levels, score tracking, and immersive gameplay by toggling UI visibility during play.
  - Gained hands-on experience with canvas rendering, game loops, and structuring a web project from scratch.
  - GitHub: Snakey-JS

- **Desktop Game – Pacman (C++ OOP Project) (2023)**
  - Built a classic Pacman game using C++ with object-oriented design and BFS-based ghost AI.
  - Added sound effects, music, difficulty modes, and persistent score tracking via file I/O.
  - Structured with modular classes for game logic, audio, entities, and user interaction.
  - GitHub: OOP-Pacman-Game

- **Parallel Programming- Parallelized A* search algorithm (2024)**
  - Implemented a parallelised A search algorithm* in C++ using pthreads and semaphores.
  - Optimized pathfinding with priority queues, unordered maps, and Euclidean heuristics.
  - Achieved improved efficiency over the serial version.

Interests:

- **Web development**
- **Android Development**
- **Machine Learning/AI**
- **Cyber Security**