Muhammad Qasim

🌐 kas-sim.github.io · linkedin.com/in/kas-sim · github.com/Kas-sim · ✉ amkassim444@gmail.com

Technical Arsenal

Languages: Java (System Arch), C++ (Memory Mgmt), Python (NumPy/Pandas), SQL
Systems Concepts: Distributed Search, O(1) Indexing, Vector Space Models, ACID Compliance, DDD
AI & ML: TensorFlow, Keras, LSTMs, Temperature Sampling, NLP Pipelines, TF-IDF Ranking
Developer Tools: Arch Linux (Hyprland), Neovim, Git Flow, Maven, Hugo, CI/CD (GitHub Actions)

Engineering Projects

DevShelf | *Java, Information Retrieval, Cloud Streaming* [View Architecture]

Engineered a *vertical search engine* for CS literature, implementing a split-stack architecture (Offline Indexing / Online Querying) to achieve $O(1)$ lookup speeds without external dependencies like Lucene.

Designed a *Vector Space Model* ranking engine, fusing TF-IDF scores with *User Behavior Analytics* (Clickstream Logs) to dynamically re-rank results based on popularity.

Architected a *Serverless CDN* using GitHub Raw Content, decoupling storage from the application to enable instant book streaming (78MB client footprint).

Implemented an *O(L) Trie-based Autocomplete* system and Levenshtein Distance fuzzy matching for typo tolerance.

Led a 3-person engineering team, establishing *CI/CD pipelines* (Maven / GitHub Actions) for automated build and release cycles.

Baby GPT | *Python, TensorFlow, Keras, LSTM* [Code]

Built a character-level **Generative Text Model** from first principles (no pre-trained transformers) to master the mathematics of next-token prediction.

Constructed a **Dual-Stack LSTM** network with a custom tokenizer trained on *Alice in Wonderland*.

Engineered a custom **Temperature Sampling** inference loop to control generation stochasticity (creativity vs. coherence).

MQ Banking Core | *C++, Qt, File I/O* [Code]

Developed a high-performance financial ledger system using direct **File I/O** and RAII patterns for ACID-style persistence.

Implemented manual memory management strategies to prevent heap fragmentation during high-volume transaction simulations.

The Digital Eye | *TensorFlow, CNN, Computer Vision*

Designed a Convolutional Neural Network (CNN) for digit recognition, implementing **Dropout (0.2)** regularization and input normalization to achieve **98% test accuracy**.

Product Engineering & Leadership

DevShelf Project Lead   Sukkur IBA University
Lead Engineer & Architect   *September 2025 – Present*

Directed the product lifecycle from architectural design to a production-ready Windows release.

Managed cross-functional delegation (GUI vs. Algorithms) and conducted code reviews for quality assurance.

Executed a direct-marketing campaign (QR codes) and integrated "Request Book" feedback loops to drive data acquisition.

Education

Bachelor of Computer Science   Sukkur IBA University
Specialization in Systems Engineering & AI   *Graduating 2028*
Relevant Coursework: Data Structures & Algorithms, Operating Systems, Artificial Intelligence, Linear Algebra.