

LAIBA AZHAR

BS Artificial Intelligence | COMSATS University Islamabad | 6th Semester | CGPA: 3.61/4.0

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[LinkedIn](#) | [GitHub](#)

AI/ML internship candidate with production experience building retrieval-augmented generation systems and machine learning pipelines. Demonstrated ability to architect end-to-end solutions, optimize for production constraints, and evaluate trade-offs. 5+ years teaching technical concepts to international audiences.

CORE COMPETENCIES

Machine Learning | Artificial Intelligence | Retrieval-Augmented Generation (RAG) | Large Language Models (LLM) | Data Science | Model Training | Data Analysis | Feature Engineering | Classification | Regression | Deep Learning | Supervised Learning | Unsupervised Learning | Vector Databases | Embeddings | Vector Search | Python Development | Algorithm Development | Production Systems | End-to-End Pipelines | Model Evaluation

PROJECTS

Medical Billing RAG System (Retrieval-Augmented Generation)

- Engineered production machine learning system: 264 medical articles processed into 5,533 vector database chunks. Achieved 100% precision on evaluation set with full source attribution and sub-second retrieval performance.
- Implemented end-to-end LLM pipeline: Python data processing, semantic chunking (800-character chunks with 150-char overlap), vector embeddings via sentence-transformers/all-MiniLM-L6-v2, ChromaDB vector database, Mistral 7B LLM integration via Hugging Face Inference API, Gradio web interface deployment.
- Conducted architecture trade-off analysis comparing vector database options (Chroma vs Pinecone vs Weaviate) and embedding models (MiniLM vs larger alternatives) based on production constraints including latency, cost, and scalability. Implemented optimizations for local deployment without cloud dependencies.
- Overcame technical challenges: Readability parsing (solved JavaScript rendering issues that DOM selectors failed on), semantic chunking strategy (preserves medical context while avoiding out-of-context retrieval), pragmatic model selection (quality/speed trade-off for production environment).

[Live Demo](#) | [GitHub Repo](#)

EDUCATION

Bachelor of Science in Artificial Intelligence

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Coursework: Machine Learning, DevOps, Computer Vision, Software Engineering, AI Systems Design

PROFESSIONAL EXPERIENCE

Founder, Alif Relief Organization

Feb 2025 — Present

- Built organizational strategy and volunteer management systems for community support initiatives. Coordinated multi-team operations and fundraising for impact measurement.
- Developed administrative workflows and team coordination processes.

Part-time Tutor, IbaTutoring

Feb 2025 — Present | Remote

- Designed machine learning curricula covering Python development, supervised learning, model evaluation, and algorithm design fundamentals.
- Delivered personalized AI and computer science instruction to international students with adaptive teaching methods.

Computer Science Instructor, Preply

Aug 2020 — Present | Part-time, Remote

- Developed machine learning and data structures curriculum for 5+ years. Taught Python, Java, C++ to university students (University of Greater Manchester, University of Melbourne). Covered 16+ skill areas with personalized learning approaches.
- Implemented adaptive teaching methods for international students. Specialized in explaining complex technical concepts and algorithmic problem-solving.

Artificial Intelligence Internship, e-strats

Jul 2025 — Aug 2025 | On-site, Islamabad

- Developed machine learning pipelines for data preprocessing, feature engineering, and model evaluation. Implemented end-to-end production AI workflows.
- Conducted data analysis and model testing for production deployment. Worked on classification and regression tasks with real datasets.

Marketing Lead, CAIS-COMSATS AI Society

Apr 2025 — Aug 2025 | Part-time

- Led marketing initiatives for university AI society (200+ members). Coordinated AI-focused events, outreach campaigns, and community engagement programs.
- Promoted artificial intelligence initiatives and increased event attendance through targeted outreach.

TECHNICAL SKILLS

Programming Languages: Python | Java | C++ | JavaScript | C

Machine Learning & AI: Retrieval-Augmented Generation | Large Language Models (LLM) | Model Training | Data Analysis | Feature Engineering | Classification | Regression | Embeddings | Vector Search | Deep Learning | Supervised Learning | Unsupervised Learning | Model Evaluation | Algorithm Development | Production Systems

Data Science & ML Tools: scikit-learn | Pandas | NumPy | LangChain | ChromaDB | Gradio | TensorFlow | End-to-End Pipelines

DevOps & Deployment: Docker | Git Version Control | CI/CD | Cloud Deployment (Hugging Face Spaces) | API Integration | FastAPI | Production Deployment

ML Frameworks: LangChain | ChromaDB | Mistral | Ollama | Hugging Face | scikit-learn | TensorFlow | Vector Databases | Semantic Search

Other Technical Skills: System Architecture Design | Trade-off Analysis | Semantic Chunking | Readability Parsing | Evaluation Metrics (Precision, Recall, F1) | Technical Documentation

COMMUNITY & ACTIVITIES

Google Developer Groups (GDG) — Active participant in AI research paper reading sessions and technical discussions. CAIS-COMSATS AI Society — Marketing lead promoting artificial intelligence initiatives. ILC COMSATS — Recruiting and communications team member.