

Hafsa Salman

Software Engineer - AI/ML Engineer

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OBJECTIVE

Software engineer focused on applied AI/ML - building systems that don't just process data but act on it. I work across the full stack: from computer vision pipelines and encoder-decoder architectures to cloud-native backends and compliance-aware platforms, with deliberate attention to what happens after deployment; reliability, real-world accuracy, and measurable impact. Engineered a Pakistan Sign Language translator using deep learning to make assistive technology accessible to an underserved population. I take ownership: if it breaks in production, that's on me.

TECHNICAL SKILLS

Core Languages: Python, JavaScript, Java, C#, SQL, MongoDB, Oracle

AI/ML & Computer Vision: TensorFlow, PyTorch, OpenCV, MediaPipe, HuggingFace Transformers, ResNet50, LSTM, ST-GCN, Encoder-Decoder Architectures, NLTK, scikit-learn, XGBoost, NumPy, pandas

MLOps & DevOps: MLflow, TensorFlow Serving, Model Versioning, Experiment Tracking, Docker, CI/CD (GitHub Actions, Jenkins), Linux

Backend & Cloud: Node.js, Spring Boot, ASP.NET Core, NestJS, AWS Lambda, API Gateway, AWS SES, RESTful APIs, MySQL, SQL Server, Supabase, PostgreSQL, Firebase

Frontend: React, Flutter, Tailwind CSS, Bootstrap, Streamlit

EXPERIENCE

AI Vision Fellow

Jan 2026

ELITE

Remote

- Annotated and labeled computer vision datasets using Roboflow, enforcing labeling standards that directly affect downstream model precision.
- Audited annotation consistency across batches to eliminate label noise prior to model training.

ML/DL Fellow

Aug 2025 – Nov 2025

Buildables

Remote

- Executed end-to-end ML workflows; data preprocessing, feature engineering, model training, and evaluation, using TensorFlow and PyTorch.
- Designed and benchmarked deep learning architectures, iterating on hyperparameters to improve model accuracy across classification tasks.

Software Engineer Intern

Jul 2025 – Aug 2025

SSGC Head Office

Karachi, Pakistan (Onsite)

- Redesigned the company's public-facing website in React, migrating from a legacy codebase to a fully responsive, component-driven architecture.
- Refactored monolithic frontend into modular React components, reducing coupling and enabling independent feature deployment across the UI.

PROJECTS

Pakistan Sign Language (PSL) Translation & Learning App | *Python, Flutter, Firebase, TensorFlow, OpenCV*

- Architected a full-stack AI-powered mobile application for PSL translation, learning, and assessment targeting an accessibility gap for Pakistan's 70M+ deaf and hard-of-hearing community.
- Implemented and benchmarked 3 deep learning architectures; ResNet50 + LSTM, Transformer-based encoder models, and ST-GCN, for sign recognition; best model achieved **85%** accuracy.
- Applied computer vision techniques for video preprocessing, hand and body landmark extraction via MediaPipe, and real-time gesture sequence analysis from video inputs.
- Built the complete Flutter/Firebase app ecosystem: authentication, progress tracking, learning modules, assessments, and interactive translation features.

Bug Severity & Priority Prediction | *Python, scikit-learn, XGBoost, pandas*

- Built an end-to-end ML pipeline to automate bug triage across **500,000** frontend UI/UX bug records, eliminating subjective manual classification.
- Benchmarked **7 classification algorithms** across 2 targets; severity (4 classes) and priority (3 classes), with Decision Tree achieving **88.71%** accuracy on severity and XGBoost achieving **89.63%** on priority.
- Reduced feature set to 10 optimised inputs via mutual information scoring; 15-step cleaning pipeline from raw Kaggle CSV to training-ready data.
- Serialised best models with joblib for production inference deployment.

Gym Membership & Workout Planner | *ASP.NET Core, ReactJS, SQL Server, Entity Framework Core, C#*

- Developed a full-stack gym management web app with separate dashboards for members and trainers, covering memberships, workout scheduling, appointments, and health records.
- Built RESTful APIs using ASP.NET Core and Entity Framework Core; secured with ASP.NET Core Identity for role-based authentication across member and trainer roles.
- Integrated Swagger/OpenAPI documentation for API testing; managed relational schema in SQL Server with scheduling and fitness progress tracking.

Aurora Tunes - Music Streaming Web App | *ReactJS, Node.js, Express.js, Firebase, Spotify API*

- Built a full-stack music streaming app integrating the Spotify Web API for track, artist, and album search across trending music, new releases, and genre browsing.
- Implemented Firebase Authentication (Email/Password + Google Sign-In), Firestore for playlist persistence, and Cloud Storage for profile photo uploads.
- Built persistent player state with shuffle, repeat, and volume controls; fully responsive across desktop and mobile.

Cloud-Based Organ Donation & Matching System | *Python, Streamlit, MySQL, AWS Lambda, API Gateway*

- Built a serverless organ donor-receiver matching platform on AWS; automated matching logic via Lambda + MySQL triggers real-time SES email notifications on compatible match detection.
- Designed RESTful APIs via API Gateway; MySQL schema enforced with foreign key constraints, normalization, and state-machine-based status workflows.

Real-Time Chat Portal with FTP File Sharing | *Python, WebSockets, ReactJS, SQL*

- Built real-time one-to-one chat using Python WebSockets with session-based authentication and persistent message storage.
- Integrated FTP file transfer with structured error handling; simulated and recovered from packet delay, loss, and corruption to validate protocol reliability.

EDUCATION

FAST NUCES

Bachelor of Science in Software Engineering

Karachi, Pakistan

Aug 2022 – Present

Army Public Degree College

Pre-Engineering

Karachi, Pakistan

Aug 2020 – Jul 2022