

ADEEL ASGHAR

Artificial Intelligence Undergraduate | ML, Deep Learning & Systems

Career Interests: Applied Machine Learning | Data Analytics | Junior Data Science | Computer Vision

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SUMMARY

AI undergraduate (CGPA 3.83/4.00) with project experience in **machine learning, deep learning, computer vision, NLP, ETL, and predictive analytics** using **Python, TensorFlow, Keras, Scikit-learn, Pandas, SQL, Tableau, React, Node.js, and Django REST Framework**. Built and deployed CNN-based image classifiers (MobileNetV2, ResNet50), full-stack AI REST APIs, and ETL pipelines processing 500,000+ records, achieving up to **95.74% test accuracy and 95.78% F1-score**. Proficient in **data preprocessing, feature engineering, model evaluation (precision, recall, confusion matrix, validation accuracy), transfer learning, and ML deployment** via Streamlit, Flask, and Vercel. Hackathon winner (HACKDATA V1) and GDG Tech Lead with 100+ students mentored in AI/ML fundamentals.

EXPERIENCE

Founding Member & Tech Lead | GDG On Campus - COMSATS Wah *Oct 2025 – Present*

- Founding member of GDG On Campus at COMSATS Wah; organized 5+ technical workshops and seminars on AI/ML, data science, and software development, reaching 100+ students
- Mentored project teams on Python, model training, evaluation metrics (precision, recall, F1-score), and Streamlit/Flask deployment workflows across supervised learning and computer vision tracks
- Delivered sessions on data preprocessing, feature engineering, CNNs, and model evaluation to strengthen practical AI/ML skills for junior cohorts

DevOps & AI Intern | SPS - Software Productivity Strategists *Jul 2025 – Sep 2025*

- Built and deployed CI/CD pipelines using Jenkins with automated build triggers, test execution, and Slack/email notifications; managed multi-stage pipeline configurations for development and staging environments
- Containerized services using Docker and Docker Swarm for orchestration and horizontal scaling; maintained service health via container monitoring and restart policies
- Used Git, Bitbucket, and feature-branch strategies for version control; performed code reviews and PR merges within a team of 4 engineers

EDUCATION

Bachelor of Science in Artificial Intelligence (BSAI) *Expected Sep 2027*

COMSATS University Islamabad, Wah Campus | CGPA: **3.83/4.00**

Relevant Coursework: Artificial Neural Networks & Deep Learning, Machine Learning, Data Structures, Database Systems, Knowledge Representation & Reasoning, Design & Analysis of Algorithms, Linear Algebra

PROJECTS

Sortd | React, Vite, Node.js, Express, Gemini 1.5 Flash, Groq Whisper v3, Supabase (PostgreSQL), PWA

- Won 1st Place at HACKDATA V1 Hackathon (Team MadGroot); architected a full-stack PWA (React + Node.js/Express) that ingests Instagram and YouTube links and screenshots into a Supabase (PostgreSQL) database with GoTrue authentication
- Integrated Gemini 1.5 Flash for multimodal screenshot OCR — extracting text in English, Urdu, and Arabic while filtering UI noise — and used the model for autonomous category classification and structured Markdown summary generation
- Built a video transcription pipeline using yt-dlp, ffmpeg, and Groq Whisper v3 (whisper-large-v3) for high-accuracy audio-to-text conversion from YouTube and Instagram Reels; delivered real-time processing status to the frontend via Server-Sent Events (SSE)
- Deployed frontend on Vercel and backend on Railway.app (supporting native yt-dlp and ffmpeg binaries); implemented PWA Share Target API for one-tap content capture on Android/iOS

BSL Hand Gesture Recognition System | TensorFlow, MobileNetV2, Transfer Learning, Streamlit

- Fine-tuned MobileNetV2 on 34,000 labeled images (34 classes, 1,000 images/class) using transfer learning and layer-wise fine-tuning to classify British Sign Language gestures, achieving 95.74% test accuracy and 95.78% F1-score
- Built real-time inference pipeline with OpenCV preprocessing and deployed as an interactive Streamlit web app with live webcam gesture classification

ThreatLens | ResNet50, TensorFlow, Keras, Transfer Learning, Django REST, React

- Converted malware binary executables into grayscale visualization images using the byte-to-image technique; trained ResNet50 via transfer learning on the Malimg dataset (25 malware families) for multi-class malware family classification
- Built a Django REST API for binary file upload, preprocessing, and model inference; integrated with a React frontend for malware family prediction display and confidence scores

DermVision | *MobileNetV2, TensorFlow, Keras, Transfer Learning, Django REST, React*

- Fine-tuned MobileNetV2 on a dermoscopy image dataset with data augmentation (rotation, flipping, zoom) and a custom classification head, achieving 78.4% validation accuracy across multiple skin lesion categories
- Developed a Django REST API for image upload, preprocessing (resize, normalize), and model inference; connected to a React frontend for real-time classification results with per-class probability scores

Smart Recycle System | *MobileNetV2, TensorFlow, Transfer Learning, Streamlit*

- Fine-tuned MobileNetV2 on a 12-class industrial waste dataset; achieved 86%+ classification accuracy and outperformed a custom CNN baseline by 25 percentage points through systematic hyperparameter tuning and data augmentation
- Deployed real-time waste detection system via Streamlit with an optimized inference pipeline designed for latency constraints in industrial environments

Retail Sales Performance Analytics Dashboard | *Python, Pandas, SQL, ETL, EDA, Tableau*

- Built a Python + Pandas ETL pipeline to ingest, clean, and transform 500,000+ UK retail transactions; performed SQL aggregations, GROUP BY queries, and window functions to calculate revenue KPIs, customer segmentation, and seasonal trends
- Designed interactive Tableau dashboards with calculated fields and parameter controls to surface top product categories, high-value customer segments, and seasonal revenue spikes for business intelligence reporting

Additional Projects: Indian Air Pollution Prediction (Random Forest, Scikit-learn, RobustScaler, Streamlit) · Smart Farm Security System (Custom CNN, TensorFlow) · AI/ML Model Advisor Expert System (Flask, Forward/Backward Chaining) · Smart Building Energy Efficiency Prediction · Encrypted Screenshot Monitoring App (AES/DES + SHA-256) · TravelBridge Pakistan (Laravel/PHP)

CERTIFICATIONS

Machine Learning Specialization (Supervised ML & Advanced Learning Algorithms) · DeepLearning.AI — Andrew Ng *Sep 2025*

Data Analysis with Python · IBM *Sep 2025*

Python for Data Analysis: Pandas & NumPy · Coursera *Jul 2025*

Git with GitLab & Bitbucket · LearnKartS *Jul 2025*

Introduction to Programming with Python (CS50P) · Harvard University *Aug 2024*

TECHNICAL SKILLS

Languages: Python, SQL, C++, Java, PHP

AI / ML: Supervised & Unsupervised Learning, Classification, Regression, Clustering, Feature Engineering, Data Preprocessing, Hyperparameter Tuning, Cross-Validation, Model Evaluation (Precision, Recall, F1-Score, Confusion Matrix, ROC-AUC)

Deep Learning & Computer Vision: CNNs, RNNs, LSTMs, Transfer Learning, Fine-Tuning, Backpropagation, Image Classification, MobileNetV2, ResNet50, TensorFlow, Keras, PyTorch

Data Science & Analytics: NumPy, Pandas, Matplotlib, Scikit-learn, EDA, ETL Pipelines, SQL Aggregations, Window Functions, CTEs, KPI Dashboards, Business Intelligence, Data Storytelling, Tableau

MLOps / DevOps: Git, GitHub, Bitbucket, Jenkins, Docker, Docker Swarm, CI/CD Pipelines, REST API Development, Model Deployment, Inference Pipelines

Deployment & Tools: Streamlit, Flask, Laravel, PHP, Flutter, PostgreSQL, Supabase, Vercel, Railway.app

ACHIEVEMENTS & ACTIVITIES

- **1st Place - HACKDATA V1 Hackathon** (Team MadGroot) - Sortd AI Content Capture Platform
- Academic Excellence Award - COMSATS University Wah Campus
- 1st Place - CS Quiz Competition, UET Taxila
- 1st Place - Speed Programming Competition, HITEC University
- Active Participant - MIT Hackathon and other national-level competitions
- Ranked 4th out of 80+ participants - Tech Quiz Competition, Tech Fest COMSATS Islamabad

LANGUAGES

English (Professional) · Urdu (Native) · Pashto (Conversational)