

Ibad Rafiq

AI / ML Engineer

AI-focused Computer Science student (graduating July 2026) with hands-on experience building and deploying machine learning, NLP, and computer vision systems. Proven ability to deliver production-ready intelligent applications — adaptive learning platforms, automated grading systems, bioinformatics pipelines, and multi-agent robotics simulations. Passionate about end-to-end model development and real-world AI deployment.

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🐙 github.com/IbadRafiq

EDUCATION

Bachelor of Science in Computer Science

Namal University, Mianwali, Pakistan

Nov 2022 – Jul 2026

Courses

- Algorithms, Software Engineering, Parallel & Distributed Computing, Artificial Intelligence, Machine Learning, Discrete Mathematics, Operating Systems, Information & Cyber Security, Natural Language Processing, Deep Learning

PERSONAL PROJECTS

Learnly — Virtual AI Co-instructor with Adaptive Learning

- Architected a full-stack smart LMS with role-based dashboards and Dockerized deployment, eliminating manual configuration overhead.
- Integrated an AI-driven adaptive quiz engine and a RAG-based chatbot for personalized, context-aware student support.
- Built automated grading and cohort-level analytics modules, delivering actionable performance insights to instructors.

Codon-Usage-Based Host Prediction of Coronavirus Genomes

- Engineered a Python ML pipeline achieving **93% accuracy** (Random Forest) predicting host species from viral codon usage data.
- Applied PCA and entropy features to expose host-adaptation signals; attained $R^2 \approx 0.89$ and Silhouette Score ≈ 0.62 .

Hybrid NIA Counter-Swarm UAV Defense System (AI/ML)

- Designed a multi-agent simulation combining GA, PSO, and ACO for intelligent swarm threat neutralization and real-time pathfinding.
- Implemented dynamic role assignment and fitness-function optimization with live performance visualization.

Automated Short-Answer Grading System (NLP)

- Developed a BERT/SBERT-based ASAG system trained on **10,000+ student responses** with score-based evaluation output.
- Benchmarked Word2Vec vs. transformers; integrated explainable feedback surfacing grading rationale directly to students.

Retinal Disease Classification System (Computer Vision)

- Trained a multi-class EfficientNet classifier on fundus images to detect and stage retinal disease severity across multiple categories.
- Optimized the inference pipeline for clinical deployment, balancing accuracy with real-world latency constraints.

SKILLS

Python C++ JavaScript SQL

PyTorch TensorFlow scikit-learn

Pandas NumPy Matplotlib

FastAPI React Docker

Machine Learning Deep Learning

NLP Computer Vision RAG

REST APIs Azure Git

MongoDB PostgreSQL MySQL

CERTIFICATES & AWARDS

Runner-Up — AFS Venture Spark 2026

CS & Technology Category, MNS Agriculture University Multan

LANGUAGES

English

Urdu

Professional Proficiency Native / Bilingual

INTERESTS

ML Model Training

End-to-End AI Deployment

Technology Exploration

Research & Innovation