

# ABUBAKAR IMRAN

Islamabad, Pakistan

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## SUMMARY:

Innovative ML & AI Engineer with expertise in computer vision, natural language processing, and deep learning. Proficient in implementing advanced algorithms and MLOps practices, with experience building chatbots and RAG systems using LangChain for production AI applications.

## EDUCATION:

**National University of Sciences and Technology**

**Sept 2022 - Present**

BS. Computer Science (6th Semester)

## EXPERIENCE:

**MacVision Lab, SEECS (Deep Learning Researcher)**

**Nov 2024 - Jan 2024**

- Worked on Land Use Land Cover Classification and crop mapping using remote sensing imagery data and deep learning models like Hybrid LSTM.
- Analyze the performance of model on **time and region transfer** approach.

**SoftPyramid (AI Intern)**

**June 2024 - Aug 2024**

- Trained **Llama3** on company policies, reducing HR query resolution time by 30%.
- Automated **attendance management**, integrating Llama3 to enable employees to check attendance and mark leaves.
- Built **RAG-based retrieval** using **LangChain**, improving response accuracy by 20%.

## PROJECTS:

**Gender Detection using Handwriting:**

- Built a handwriting-based gender classification model using feature-based and image-based approaches, optimizing 7,000+ extracted features for better interpretability and efficiency.
- Applied **Random Forest**, **SVM**, and **XGBoost**, fine-tuning hyperparameters and leveraging **CNN**, **ResNet**, and **EfficientNet** for deep feature extraction and conducted comparative model evaluation.

**Facial Classification:**

- Engineered face classification model using ResNet and EfficientNet architectures, optimizing performance through transfer learning and data augmentation.
- Developed modular PyTorch codebase with automated prediction pipeline for generating Kaggle-compatible submissions, implementing efficient hyperparameter tuning for model optimization.

**Road Scene Semantic Segmentation MLOps:**

- Implemented a MobileNet-based DeepLabV3+ model with enhanced ASPP and SKFusion, using advanced augmentation and class-weighted loss to improve mIoU.
- Engineered a PyTorch training pipeline leveraging MLOps practices for efficient model training, versioning, and performance monitoring.

**National Anthem Analysis: (Lyrics Vista)**

<https://lyrics-vista.netlify.app/>

- Built Python application for anthem analysis and generation using NLP techniques and K-Means clustering to identify patterns across national anthems.
- Integrated OpenAI's generative capabilities for anthem creation while implementing Matplotlib/Seaborn visual

**Space Shooter Simulation using AI Agents:**

- Implemented Greedy Approach, **Genetic Algorithm**, **MDP**, and **Deep Q-Learning (DQN)** for AI-driven space shooter.
- Compared rule-based, evolutionary, probabilistic, and deep RL methods for performance optimization.

## SKILLS :

- ML :** LangChain, TensorFlow, PyTorch, Pandas, NumPy, Matplotlib, Seaborn, OpenCV
- Development:** NextJS, React, JavaScript, TypeScript, Node.js, ExpressJS, Tailwind, MongoDB, MySQL, Firebase
- Version Control and Languages:** Git, DVC, GitHub, C, C++, Java, Python

## CERTIFICATIONS:

- Machine Learning Specialization by DeepLearning.AI
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- McKinsey Forward Program by McKinsey & Company