Youssef Khalifa

Nasr City, Cairo, Egypt | 01022445304 |
Youssefkhalifa458@gmail.com | LinkedIn | Projects Portfolio

Summary

AI Engineer and Data Scientist with hands-on experience designing and deploying scalable AI solutions in Computer Vision and NLP. Architected real-time facial recognition platforms, NLP classification engines, and enterprise analytics dashboards. Proven track record in delivering production-ready models with measurable business impact using Python, TensorFlow, and cloud-scale tools. Skilled in data management, ML model optimization, and cross-functional collaboration.

Education

Ain Shams University – B.Sc. in Computer Science and Information Systems 2024
Major : Computer Science (GPA: 3.05)

Work Experience

Ai Engineer | 51Talk **Oct 2025 - Present**

- Driving AI adoption across the business by identifying high-value use cases, integrating AI into core workflows, deploying production-grade automation/personalization solutions, and measuring their direct impact on efficiency and performance.

Data Scientist | Emaar Misr **Oct 2024 - Sep 2025**

- **EMI - Emaar Misr Intelligence**
  Co-developed a sophisticated AI-powered Business Intelligence chatbot for real-estate analytics, enabling natural language querying, automated SQL generation, and interactive data visualizations for internal company use.
  - Contributed to building a data engineering pipeline to read, clean, and join tables across two separate systems — initially using SQLAlchemy, later experimenting with Apache Spark for scalability..
  - Participated in designing the chatbot tool ecosystem, including chart generation and CSV export functionality over complex multi-condition queries, focusing on robustness and reliability.
  - Co-developed a multi-step agent framework that handles intent detection, entity extraction, query generation, data analysis, and summary/answer generation.

- **Enterprise Surveillance Intelligence Platform**
  Led end-to-end development as sole project architect for production AI surveillance system at Emaar, designing system architecture, orchestrating implementation roadmap, and personally developing 75% of codebase including core recognition engine, API layer, and UI components.
  - Led end-to-end development as project architect for an AI surveillance system. Designed system architecture, developed 75% of codebase, and integrated recognition engine, APIs, and UI.
  - Deployed production-ready facial recognition and license plate detection system achieving 85% accuracy and <200ms latency.
  - Built distributed microservices architecture with FastAPI and async processing, ensuring 99.5% uptime and supporting multi-client concurrent access.
  - Implemented multi-stage recognition pipeline (face detection → embedding extraction → FAISS similarity search → verification) at 30 FPS on a 50,000+ resident database.
  - Optimized FAISS similarity search from O(n) to O(log n), improving scalability
  - Standardized detection formats using JSON schema and base64 encoding, reducing client-side complexity by 60%.

- Impact: Reduced security response time by 75% and eliminated 90% of manual monitoring tasks.
- Tech Stack: Python, TensorFlow, InsightFace, FAISS, OpenCV, FastAPI, Microservices Architecture

- **NLP Complaint Classification System**
  Built production BERT-based complaint classification system processing 258,000+ tickets across 158 categories , achieving 78% accuracy across relevant Categories.

  - Built BERT-based complaint classification system processing 138,000+ tickets across 158 categories, reaching 78% accuracy.
  - Implemented BiLSTM with BERT embeddings (1.5M parameters), reducing manual classification by 90%.
  - Optimized with Optuna (50+ trials, 8-worker parallelization) and SMOTE for imbalance handling.
  - Integrated Snowflake warehouse with automated multilingual preprocessing.
  - Impact: Automated 60% of manual routing tasks.
  - Tech Stack: Python, TensorFlow, Transformers, Scikit-learn, XGBoost, Snowflake

- **Developed enterprise-wide Power BI dashboards for cross-functional analytics, including:**

  - Complaints Analysis & CSAT Monitoring
  - Delayed Task & SR Tracking.
  - SLA Adherence .
  - Company-wide P&L.
  - VIP Customer Dashboard – end-to-end client insights (history & satisfaction).

Certifications & Courses

Sample-based Learning Methods | University of Alberta & Coursera **Sep 2025**
- Studied Monte Carlo and temporal-difference reinforcement learning (Q-learning, SARSA, Dyna) to build sample-efficient AI agents. Certificate

Machine Learning | DeepLearning.ai, Stanford & Coursera **Mar 2025**
- Gained practical skills in supervised/unsupervised learning, neural networks, and ML implementation. Certificate

DeepLearning.AI TensorFlow | DeepLearning.ai & Coursera **Feb 2025**
- Built and trained deep learning models in TensorFlow for CV, NLP, and time series tasks. Certificate

IBM Data Science | Coursera **Feb 2025**
- Mastered Python, SQL, data analysis, visualization, and GenAI through a 12-course program, culminating in a capstone project. Certificate

Microsoft Azure Machine Learning | Coursera **Jan 2025**
- Applied low-code/no-code tools to build and deploy ML models using Azure ML Studio. Certificate

Projects

X-Ray Bone Abnormality Detection using Multiview CNN Architecture (MURA dataset) **2024**
- Using the dataset MURA with 2 stage system of CNN models
- Developed and compared two CNN-based approaches: a single-view model achieving 82% accuracy and a multi-view system reaching 85% on the MURA dataset.

Neural Network and transformer from Scratch **2023**
- Built a neural network with full functionality from scratch without any pre-built API

Skills

- **Programming:** Python, Java, C++, C#, JavaScript, Scala
- **AI & Machine Learning:** Deep Learning, Computer Vision, NLP, Transformers, TensorFlow, scikit-learn, Hugging Face
- **Data & Tools:** SQL, Database Management, Snowflake, Power BI, Excel, DAX, Data Analysis, Model Fine-tuning, Data Pipeline Optimization, Azure Machine Learning
- **Soft Skills:** Presentation, Communication, Leadership, Teamwork, Adaptability, Time Management