Omar Kamel Al Wahsh

Junior Machine Learning Engineer
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Professional Summary

Junior Machine Learning Engineer experienced in building and evaluating ML/DL models and delivering production-style AI pipelines using Python, scikit-learn, PyTorch, and TensorFlow. Productized a YOLOv8 computer vision inference system (image/video) with an interactive Streamlit dashboard, structured result logging, and reproducible deployment workflows. Experienced in AI deployment and structured data quality workflows for autonomous driving perception datasets (Cruise).

Technical Skills

- **Programming & Data:** Python, NumPy, Pandas, scikit-learn, SQL, feature engineering, model evaluation
- **Deep Learning:** PyTorch, TensorFlow, Ultralytics YOLOv8
- **Computer Vision:** OpenCV, object detection pipelines, image/video inference, metrics (mAP)
- **NLP & Document AI:** Hugging Face Transformers, PyMuPDF, NER, summarization
- **AI Deployment & Demos:** Streamlit, Flask, REST APIs, Gradio, packaging, dependency debugging, model integration
- **Tools:** Git, Bash, Jupyter, VS Code
- **Soft Skills:** Communication, teamwork, ownership, fast learning, structured problem-solving

Projects

Parking Lot Occupancy Detection (YOLOv8 + Streamlit Dashboard) [GitHub] [Live Demo]
Ultralytics YOLOv8, OpenCV, Streamlit, Python, Video Inference, Structured Logging

- Built a production-style end-to-end **computer vision inference system** to classify parking spaces into **Free** / **Occupied** / **Partially Free** from both **images and videos**, generating annotated outputs (PNG/MP4) for downstream consumption.
- Trained and evaluated a custom YOLOv8 model on a labeled dataset (**30 images, 903 annotated parking slots**) achieving **mAP50: 0.986 (Free) and 0.994 (Occupied)**, and documented performance limitations for the partially-free class.
- Developed an interactive **Streamlit dashboard** enabling users to upload media, tune confidence thresholds, visualize color-coded detections, and download annotated results for demos and stakeholder review.
- Implemented a CLI inference pipeline with robust path handling, automatic media-type detection, and structured output logging via **state.json** (timestamp, counts, output paths) to support reproducibility and auditing.
- Delivered a fully usable ML demo for non-technical users, reducing setup effort and enabling rapid validation of model behavior under different thresholds and media conditions.

Real-Time Speech-to-Text System [GitHub]
Transformers, Audio Processing, Gradio

- Built a low-latency speech transcription system using Hugging Face transformer models for real-time inference.
- Developed an interactive Gradio interface for live audio input and streaming transcription output.

Lab Report NLP Assistant (PDF Extraction & Summarization) [GitHub]
PyMuPDF, NER, Information Extraction, Summarization

- Developed a pipeline to extract and structure laboratory test values from PDF reports using PyMuPDF and NER.
- Generated concise summaries for extracted values using lightweight LLM summarization to support faster review, reducing manual time by ˜25%.

Work Experience

AI Deployment Intern (Trainee) Cairo, Egypt
Zedny for E-Learning Services **Dec 2025 – Present**

- Supporting the deployment of AI/ML models into usable applications for e-learning use cases, focusing on inference reliability and reproducibility.
- Building and maintaining lightweight inference services and demo interfaces using **Flask** and **Streamlit**, enabling non-technical stakeholders to validate model behavior.
- Assisting in packaging and environment setup (requirements management, versioning, and dependency debugging) to ensure consistent runtime across local and cloud environments.
- Contributing to model integration workflows, including input validation, pre/post-processing logic, structured outputs, and basic monitoring/logging for inference results.

Team Lead – Data Labeling (Perception AI) Cairo, Egypt
Micro Engineer Group — Client: Cruise (Self-Driving Cars) **Mar 2024 – Mar 2025**

- Led a labeling team for autonomous driving perception datasets, improving annotation accuracy by 15% through structured QA checks.
- Developed Python-based validation scripts to detect inconsistencies, reducing QA review time by 20%.
- Standardized workflows and onboarding documentation to improve team efficiency and consistency.

Certificates

- Python for Data Science — IBM (2024)
- Build and Deploy ML Models on Vertex AI — Google Cloud (2024)
- Artificial Intelligence — INSTNT (2023) — Machine Learning — INSTNT (2023)

Education

BSc in Computer Science, Modern Academy, Cairo *Oct 2020 – Aug 2024*
Graduation Project: *Intelligent Model for Laboratory Analysis Detection Using Deep Learning* — Awarded Distinction.

Languages

Arabic: Native — English: Fluent