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Career Summary

Software Engineer - Machine Learning

- Software engineer with 3+ years of experience in machine learning, data science, and full-stack development, specializing in building scalable software solutions that that integrate machine learning as micro-services.

Areas of Expertise

- Software Engineering
- UI / UX Design
- Cloud Services

- Machine Learning
- Data Science
- Data Analysis

- Front-end development
- Backend Development
- Big Data Engineering

Work Experience

Software Engineer Machine Learning - Giza Systems   **September 2022 - Present**

Responsibilities:

- Designed and implemented **low-level software designs**, ensuring high-quality code with **OOP** and **design patterns**.
- Built and deployed **end-to-end ML pipelines** and **ML-as-a-Service** applications for advanced analytics.
- Developed real-time forecasting models for time-series data in **smart industrial cities**.
- Created technical design documents for **SW-ML projects**, including low-level designs for complex components.
- Contributed to technical proposals and business opportunities through write-ups and presentations.
- Collaborated with data scientists and engineers to deliver seamless integration between **ML pipelines**, software applications, and **data visualization dashboards**.

Key Projects:

1. **MODON Smart Industrial Cities in KSA**
   - **Role**: Software Engineer - Machine Learning Engineer
   - **Technologies**: Django, Python, RESTful APIs, Clustering Algorithms, Azure DevOps, pySpark, Kafka
   - Built advanced analytics models focusing on clustering techniques for time-series data analysis.

2. **IDP-ML Advanced Analytics Platform (SW Product)**
   - **Role**: Software Engineer - Machine Learning
   - **Technologies**: Django, Python, Apache Airflow, Kafka, Sklearn, pySpark, GraphQL, Azure DevOps
   - Designed and implemented supervised and unsupervised ML jobs, developing microservices for ML inference and training pipelines. Used Airflow for scheduling and workflow automation.

3. **MEWA (Ministry of Environment, Water, and Agriculture In KSA)**
   - **Role:** BI Developer
   - **Technologies:** Kibana, Power BI
   - Created dashboards for two projects in Saudi Arabia, focusing on water management and drilling operations.

4. **ELK Stack Implementation: Confidential Client in KSA:**
   - **Role:** Data Engineer & Software Engineer
   - **Technologies:** ELK Stack (Elasticsearch, Logstash, Kibana, Beats)
   - Implemented data flow mechanisms for observability, including system monitoring, API monitoring, audit trail

logs, and security logs. Developed endpoints for a global advanced search engine.

5. **POCs & Miscellaneous Projects**

- **Virtual Assistant:** Led and Built an AI-powered assistant using React, Django, Wav2Lip, and SpeechRecognition.
- **Digital Twin:** Development of 3D modeling tools for creating assets and floorplans.
- **AutoEvaluation Dashboard**: Designed interactive visualizations using Plotly For AutoEval Paper.
- **AutoML Dashboards:** Developed front-end solutions using Plotly for AutoML Paper.

Software Engineer - WE Work Group   **March 2021 - August 2021**

Responsibilities:

- Collaborated with clients through **business meetings** to gather and refine project requirements.
- Designed and implemented **UI/UX prototypes** to streamline requirement gathering, reducing design iteration cycles.
- Developed and optimized **frontend interfaces** for multiple projects in **KSA**, focusing on usability and responsiveness.

Education

Post-Graduate Diploma in AI and Machine Learning

Information Technology Institute (ITI), Smart-Village, Giza • October 2021–July 2022

Bachelor in Computer Science (BCS) - Minor in Software Engineering

Faculty of Computers and Information Technology, Kafr El-Sheikh University, Egypt • October 2017-June 2021

Skills

Programming Languages:
- Python, JavaScript, Java, C, C++, Bash

Machine Learning & Data Science:
- TensorFlow, Keras, Sklearn, PySpark, SparkML, AWS SageMaker, MLflow, AutoML, Alteryx, Supervised/Unsupervised Algorithms, Numerical Optimization, Computer Vision

Data Engineering:
- SQL, NoSQL (MongoDB, Redis), Apache Kafka, Apache NIFI, Apache Spark, Apache Airflow, ELK Stack (ElasticSearch, LogStash, Kibana, Beats), ETL processes, Star Schema

DevOps & Cloud:
- Docker, AWS, Azure DevOps, Azure Repos, Git, GitHub, Jenkins, Linux (Redhat, Ubuntu)

Backend Development:
- Django, Flask, Node.js, RESTful APIs, GraphQL, MySQL, PostgreSQL, Redis, Swagger, Postman

Front-end & UI/UX:
- React.js, Angular, SCSS, Bootstrap, Material UI, Figma, Adobe XD

Business Intelligence & Data Visualization:
- Power BI, Kibana, Dash (Plotly), Seaborn

Selected Certifications

Microsoft Power BI Data Analyst Certified
Microsoft • 2023

Data Scientist With Python Track
Datacamp • 2022

Machine Leaning Specialization
Coursera • 2023

AWS Machine Learning Engineer Nano-degree
Udacity • 2022

React Nano-degree
Udacity • 2021

Selected Projects

Virtual Assistant - (Django, React, Wav2Lip, Speech Recognition) • 2023

- Developed a React-based frontend for a voice-interactive virtual assistant, integrating **Wav2Lip** for realistic lip synchronization and **speech-to-text** solutions.
- Led ITI team members to enable real-time question-and-answer interactions, enhancing user experience through advanced speech processing capabilities.

Automatic Number Plate Recognition (ANPR) - (Object Detection, OCR, Flask, JavaScript) • 2022

- Implemented an **OCR algorithm** to accurately detect and read license plates, achieving high precision across varied lighting conditions.
- Led the development of a seamless and responsive user interface for real-time interactions using Flask and JavaScript.

Head Pose Estimation - (Mediapipe, sklearn) • 2022

- Built a machine learning pipeline to estimate **yaw, pitch, and roll angles** from 68 facial key points using **Mediapipe** for feature extraction and sklearn-based regression models.

Wuzzuf Jobs Data Analysis - (Java SpringBoot, Javascript, Data Analysis Dashboard) • 2021

- Developed a web service to analyze job market data, providing **interactive visualizations** for insights into popular companies, job titles, and locations.

Glaucoma and Cataract Detection using Deep Learning (Deep learning, Flask, React, Stripe, Heroku) • 2021

- Designed and trained a cutting-edge deep learning model for glaucoma and cataract detection, achieving **98% accuracy** on unseen data.
- Integrated the model into an API, enabling seamless deployment as a **Machine Learning-as-a-Service (MLaaS)** within a web application.

Real-time Chat App - (Socket.IO, NodeJS, React) • 2020

- Built a real-time chat application with **Socket.IO** for instant messaging, utilizing **ReactJS** for a dynamic and interactive user interface.

Campgrounds Web Application - (NodeJs, Javascript, ExpressJs, PassportJs,MongoDB) • 2019

- Developed a platform for users to browse, review, and book campgrounds, integrating MongoDB for data persistence.

E-Commerce Web Application - (Django, Javascript, Bootstrap) • 2018

- Designed and implemented an **e-commerce platform**, developing the frontend using HTML, CSS, and JavaScript, and integrating it with **Django** and **SQLite** for backend operations.
- Focused on delivering a seamless shopping experience with an intuitive interface and robust database handling.

Languages

- **Arabic** – Native
- **English** - Professional