Software Engineer / Data Analyst

Python / Machine Learning / AI

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**Summary**

* **1 year of experience** as a **Software Engineer** with a **B.Sc. in Computer Science** and a strong foundation in **Python, .NET C#**, **C++**
* Experienced in building scalable **software solutions** and developing **machine learning models**.
* Skilled in **SQL**, frameworks, and libraries such as **PyTorch, TensorFlow, Flask**, and **OpenCV.**
* Hands-on experience with **AWS** cloud services.
* Proficient in **deep learning, computer vision**, data analysis, and **predictive modeling**.
* Writes clean, **maintainable code** following **OOP principles** and design patterns.
* Completed projects in **autonomous systems**, stock prediction, sports analytics, and **image classification.**
* Brings a practical, well-rounded approach to both data-driven and software engineering roles.
* **Developed practical AI solutions**, focusing on data analysis and prediction.
* Developed Python-based APIs using Flask, enabling seamless communication with databases.

**Experience**

2023 - 2024Software Developer, **REISense**

* **Developed Python models** and feature-driven logic to identify U.S. investment opportunities.
* Built an **API-based ingestion** layer that pulls data from an external website.
* Designed and scheduled a nightly **ETL** (Extract-Transform-Load) pipeline to fetch and save raw **JSON** to **S3**.
* Converted JSON payloads into Parquet files using **AWS** for efficient storage and downstream processing.
* Orchestrated Spark jobs on **AWS EMR** to load the Parquet data and execute the opportunity-detection logic.

**Education**

2020 - 2024 **B.Sc. in Computer Science**, The Academic College of Tel-Aviv, Yaffo

**Notable Courses:** Data Structures, Operating Systems

Python with Machine Learning (**91**), Deep Learning.   
Object-oriented programming in the .NET environment and C# language (**83**), Design Patterns (**84**).

Object-oriented programming and C++ (**85**)

**Professional skills**

Programming Languages: **Python, C, C++, C#, SQL**

Frameworks & Libraries: **OpenCV, Flask, PyTorch, TensorFlow**

Technologies & Tools: **Git, AWS, Linux**

Fields & Techniques: **Deep Learning, Machine Learning, Image Processing, NLP**

Software Engineering Concepts: **Design Patterns, OOP** - Object-Oriented Programming

**Final Academic Project**

2023 - 2024 Autonomous Car - **Python, C/C++, Machine Learning, Image Recognition**

* Developed a real-time road sign detection and vehicle control system using **Python** for machine learning and **C/C++** for hardware control.
* Implemented image processing with **OpenCV** and machine learning models with **PyTorch**. Designed a **Flask**-based communication interface for seamless data exchange between the ESP32 camera and PC.

**Personal Projects**

Stock Market Prediction App - **Python, PyTorch, Machine Learning, Deep Learning**

* Developed a **modular desktop application** that allows users to select a stock ticker and a model, including Traditional and **Deep Learning models,** to forecast future prices of the stock.
* Implemented multiple **machine learning models**—including **LSTM, GRU, Ridge, Lasso**, **XGBoost**, and **Random Forest**- to perform iterative, multi-step forecasts on financial time series using log returns.
* Integrated interactive visualization with **Matplotlib** to display both full-range historical data and zoomed views of recent trends alongside future predictions.

Premier League Match Prediction - **Python, Machine Learning, AWS, API**

* The project demonstrates using APIs for data retrieval and cloud storage technologies.
* Utilized **AWS S3** for **data storage** and model deployment.
* Faced challenges integrating with **AWS SageMaker**, which were resolved through local **XGBoost implementation** for model training and prediction, handling multi-class classification for match outcomes.
* Deployed the model and performed training on **AWS EC2**, utilizing its compute resources for model training at scale, gaining hands-on experience in **cloud-based workflows**.

Intel Image Classification - **Python, PyTorch, CNN**

* Built a Convolutional **Neural Network (CNN)** from scratch to classify images into six categories.
* Implemented data preprocessing, model training, and evaluation using **PyTorch.**
* **Achieved 82% accuracy** on the test set that consists of ~3K images.

Garage management system - **C#**

* Built an **object-oriented app** to manage vehicle data using classes, inheritance, and polymorphism.
* By encapsulating functionality within classes, the project promotes **modularity** and **code reusability**.

**Link to** [My projects](https://github.com/talrab1999?tab=repositories)

**Military Service**

* Military Police security unit in "The Kirya" base. Served as Duty Commander and right-hand assistant to the Military Police Security Unit Major at "The Kirya" base.

**Languages**

**Hebrew** - Native I **English & Russian** - Full Professional Proficiency