YACINE BEN AMEUR

Data Scientist – Machine learning engineer (3+ years)

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WORK EXPERIENCE

Data scientist - CDI

Econocom - Grenoble, France

February 2024 - Present

- During intermissions, I actively pursued certifications and training in **Cloud Computing** (AWS, Azure) and **Generative AI**, focusing on **chatbot development** and **Retrieval-Augmented Generation (RAG)** techniques.
- Developed a **chatbot** leveraging **RAG** to enhance user interaction with proprietary company data, significantly improving data accessibility.
- Enhanced the **user experience** by designing an intuitive chatbot **interface** for seamless interaction with company information.
- **Tools: AWS, Langchain, LlamaIndex, OpenAI API, Streamlit, Flask**

Data scientist - Freelance

Upwork - USA

Dec 2023 – January 2024

- **Analysis** of data from an **American e-commerce company** specializing in truck shipping.
- Creation of **interactive visualizations** to identify trends and anomalies in shipping performance.
- Development of **machine learning models** to **forecast** warehouse loads and optimize shipping decisions.
- **Tools: Python, SQL, Azure SQL Database, plotly, catboost, neuralforecast**.

Machine learning engineer - Freelance

Upwork - USA

August 2023 - October 2023

- Designed and developed algorithms to replicate chefs' precise techniques in handling kitchen utensils for an American startup (**Range Robotics**).
- Implemented a robust system for **tracking experiments** and **versioning models** to ensure reproducibility and continuous improvement.
- **Tools: Python, Pytorch, AWS SageMaker, Weights & biases**.

PhD student in Machine learning

INRIA - Paris, France

Januray 2021 - June 2023

- **Retrieval** and processing of data from various sources (simulators, datasets).
- Study and proposal of **innovative methods** to address specific challenges in the field of autonomous vehicles.
- Developped **deep reinforcement learning** algorithms for decision making.
- Applied a **vision transformers** to predict objects in autonomous driving scenes.
- Establishment of an **MLOps environment** to support large-scale training.
- Integration of practices ensuring **reproducibility**, **traceability**, and efficiency in the data analysis process.
- **Tools: Python, Pytorch, Amazon SageMaker, MLflow, Git, Docker**.

SKILLS

Programming languages
- Python, SQL, C/C++, Bash

Cloud
- Azure: Azure ML, Azure AI search, Azure Databricks
- AWS: AWS SageMaker, Lambda, API Gateway, EC2, S3

Databases
- Relational database: MySQL, PostgreSQL, Azure SQL Database
- Vector database: Chroma, Pinecone

Data manipulation
- Numpy, Pandas, Networkx

Machine learning
- Tabular data: scikit-learn, XGBoost, LightGBM, statsmodels
- Deep learning: Pytorch, Tensorflow, Keras

Generative AI
- Large language models: GPT 3.5 /4, LLAMA 2, Mistral, Bert
- Frameworks: Langchain, LLamaindex
- Embeddings: FAISS, openai embeddings
- Concepts: RAG, Fine-tuning, chatbot

Data visualization
- Dashboard: Tableau, Power BI, streamlit
- Libraries: Matplotlib, seaborn, plotly

Development tools
- OS: Linux, Windows
- IDE: VsCode, Jupyter notebook, Pycharm
- Version control: Git (Github/ Gitlab)
- Contenerization: Docker

CI/CD
- Integration: Pytest / Pylint / Github Actions
- Deployment: Amazon EC2 / AWS Lambda / HuggingFace endpoints
- Web Frameworks: Flask/ FastAPI
- ML Lifecycle: Weights and biases / MLFlow

PROJECTS

Generative AI for SQL Queries

June 2024

- Fine-tuned an **LLM (Microsoft Phi-3)** to generate SQL queries from natural language.
- Connected the **generated SQL queries** to a MySQL database and successfully executed the desired queries.

Machine learning engineer - Intern

Akka Technologies - Paris, France

June 2020 – November 2020

- Proposed a **deep learning** approach for **autonomous car decision making**, using **Graph convolution networks**.
- **Defined**, **prepared** and **cleaned** the according **dataset**.
- Participated elaborating the **software architecture**.
- **Tools: Python, Tensorflow, Git, Docker**.

Machine learning engineer - Freelance

Fiverr

September 2019 - April 2020

- Application of **NLP techniques** to analyze customer service phone conversations.
- **Creation** of supervised machine learning models to accurately predict the most common defects reported by users.
- **Utilization** of these models to anticipate and effectively resolve issues.
- **Tools: Python, NLTK, Spacy, MySQL, Pandas, Scikit-learn**

EDUCATION

Masters degree in Autonomous vehicles

Mines, ENSTA, ENSAM - Paris, France

September 2019 - November 2020

- Fully-funded **Scholarship** offered by **RENAULT**
- Relevent courses : **Machine learning, Computer vision, Pattern recognition**

Control engineering

Ecole Nationale Polytechnique - Algiers, Algeria

September 2014 - July 2019

- Relevent courses : **Dynamical systems, Optimization, Statistics, Control**
- Ranked **14th** among **1000+ candidates** in national engineering competition.
- Ranked in the **top 100 nationally** in the baccalaureate exam.

Deep learning for drone racing

ALPHAPILOT 2019

Jan. 2018 - May 2018

- Designed and trained a drone **perception system** using a **Convolutional neural network**.
- Performed **outlier detection** using **statistical tests** and **deep auto-encoders**.

European mobile robots competition

EUROBOT 2018 - LRSY, France

Jan. 2018 - May 2018

- Won the first place nationally, and the **second internationally** (36 particpating teams).

LANGUAGES

- English : Bilingual
- French : Bilingue
- Arabic : Native