

Emmanuel Akpandara

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I am an IT professional focused on data science, backend development, and data engineering who is passionate about leveraging AI, machine learning, and backend technologies to initiate data-driven solutions and solve real-world problems efficiently.

Experience

SEP 2024 – PRESENT

Data Science Intern – NLP and Classification | Umicore | Olen, Belgium

Objective: Develop an algorithm that combines statistical approaches from **LLMs** with automated deduction techniques to analyze patent documents and generate accurate patent classifications.

Results:

- **Achieved an 84% Accuracy** in patent document classification by finetuning state of the art language models improving previous classification accuracy.
- **Enhanced model interpretability and tracking** by designing and implementing comprehensive experiment logs in **Azure Databricks MLflow**, ensuring clear model evolution and metric visibility for the team
- **Enabled data lake logging and automated data retrieval** for patent data using **PySpark** for efficient environment configuration across test and production environments.
- **Developed a data preprocessing pipeline** for patent analysis, including data cleansing, stemming, and lemmatization to improve text consistency.
- **Implemented data augmentation techniques** with **contextual word embeddings** to enrich datasets.
- **Implemented ensemble techniques** with **BERT** and **GradientBoosting** models minimizing loss by **10%**.

Projects

DEC 2023 – FEB 2024

Water Level Monitoring Web App

Collaborated in a 6-member team to monitor water levels in Flanders for the company **CIPAL**, using sensor data from **waterinfo.be** APIs and processing with **Node-RED** and **Grafana**. Developed a Streamlit app that enabled users to sign up, view water levels on charts, set thresholds for alerts, and manage files related to sensor setups with **firebase**.

Key Impact:

- Delivered a **user-friendly web app** with login and registration functionalities, empowering users to **report and monitor water levels** for various stations across Flanders.

- Implemented **alert thresholds** for significant water level changes, ensuring timely notifications for users.
- **View and store sensor files**, logged in users could view and log files such as water level records and set up files for multiple sensors across Flanders.

NOV 2023 – DEC 2023

Hornet Detection and Tracking Using Computer Vision



- **Challenge:** Collaborate with a team of three to develop an application aimed at **tracking hornets in video near beehives to mitigate damage**.
- **Approach:** Collected and labeled bee and hornet images, and processed data using **Roboflow**. I led the model training and evaluation on this dataset, while other team members focused on preprocessing. The final application was deployed via **Streamlit**.
- **Results:** Successfully built a functional model capable of distinguishing and tracking hornets in video. This work supports beekeepers in identifying potential threats to beehives.

Skills

✓ Machine Learning and NLP	✓ Data Engineering and Storage	✓ Docker ✓ Kubernetes	✓ Bizagi ✓ Axure
✓ Git ✓ Jira	✓ PHP	✓ MongoDB ✓ MySQL	✓ SAP
✓ Python ✓ Java	✓ Google Cloud ✓ Amazon Web Services	✓ .Net Development ✓ Flutter	✓ Azure Databricks
✓ React ✓ Next js	✓ Qlik Sense ✓ Grafana	✓ Microsoft 365 Ecosystem	✓ Excel




Education

SEP 2021 – PRESENT


Bachelor of Applied Computer Science: Artificial Intelligence | Thomas More University | Geel, Belgium

Relevant Course Work:

- **Data Science:**

- ✓ Hands-on labs using AWS tools: **WSA Glue, S3, Amazon Athena, and Amazon Redshift** for **data engineering**
- ✓ **Machine Learning pipeline** labs including **Crop Yield Prediction project** with **Amazon SageMaker** 
- ✓ **Forecasting Labs** with **Amazon Forecast**
- ✓ **Computer Vision Labs** and walkthrough with using **Amazon Rekognition** and **Ground Truth**
- ✓ **Big Data** coursework and **projects: Sea-Birds Classification (Computer Vision)** and **Toxic Comments Classification (NLP)** 
- ✓ **Waldo/Wally Detection web app** project, model trained using **YOLOv8** 

- **Web Development:**

- ✓ **Home Management Project** with **PHP Laravel** 
- ✓ **.NET Development** coursework, assignments and mini-projects
- ✓ **Supermarket Application Project** using **Java Spring Boot MVC** and **Thymeleaf**.
- ✓ **Web Stack project** using **Docker / Kubernetes** with **lighttpd, FastAPI** and **MongoDB**

- **Embedded Systems:**

- ✓ **Fish tank Monitoring System** project using **Raspberry Pi** and sensors.
- ✓ **Weather Station and Report project: Arduino** setup with with **MQTT** sensor data transmission.

- **Business and Entrepreneurship:**

- ✓ **Data Visualization projects** using **Qlik Sense: Airbnb Hostings Summary** and **Olympic Games Analysis**
- ✓ **Data Modelling** and prototype design using **Axure** for a **Job Application Training web app**

- ✓ **Business processes mapping** for **Garage Dams** using **Bizagi** after stakeholder interviews.
- ✓ **SAP S/4HANA project: Procurement and sales process simulation** for Coffee Beans.

Certifications

OCT 2023 – FEB 2024

Data Engineering, Big Data, and Machine Learning on GCP Specialization series

- Google Cloud Big Data and Machine Learning Fundamentals on Coursera **with Dataflow, Pub/Sub and Vertex AI.**
- Modernizing Data Lakes and Data Warehouses with Google Cloud on Coursera .
- Building Batch Data Pipelines on Google Cloud on Coursera with **Dataproc, Dataflow, Data fusion and Cloud Composer.**
- Building Resilient Streaming Analytics Systems on Google Cloud on Coursera with **Dataflow, BigQuery and Pub/sub.**
- Smart Analytics, Machine Learning, and AI on Google Cloud on Coursera with **Vertex AI AutoML.**

Activities

- **ESN Buddy – Assisted 4 new international students** settle into their student life by getting them registered at the town hall, helping to move into their dorm rooms, taking them around campus and updating them on social events.
- **ESN Sports Team** – For the **Erasmus student network** I participated in the basketball and futsal team when there were tournaments.