



RAVOAHANGILALAO

Anjaniana

Kaloina M  lodie

Data Engineer, Full-Stack Developer

ACCOMPLISHMENT

Data Visualization and Process Management –

UNICEF WASH Madagascar

Dec 2024 – Jun 2025

As a data visualization intern within the Monitoring & Evaluation unit of Unicef WASH Madagascar, I designed and improved dashboards in the MGMERL system for grant monitoring, outcome tracking, and quality control, ensuring that information was accessible and actionable for programme staff. I adapted and developed data collection forms, and wrote user guides to support correct usage.

I integrated datasets from multiple sources, including Echo, SAP, and KFW, managed large-scale imports from IoT sensors dataloggers, and implemented deduplication processes to maintain data quality. I also led training sessions for partners, enabling them to use visualization tools effectively to follow results, monitor activities, and apply data in their reporting.

My internship certificate can be found at the following link.

<https://jumpshare.com/share/PMi5Cq8j55PAMbvtadJt>

LLM-based Job–Candidate Matching System – Embedding & Matching

2025

TalentMatch is designed to provide value to both parties by facilitating candidates in finding opportunities that match their profile and enabling recruiters to more efficiently identify potential individuals. I took over the original matching system for this project and improved the procedure to make it more fast. The platform was slowed down by the previous method's reliance on real-time model inference. By switching to an embedding-based workflow with Milvus as a vector store, I was able to adapt it so that resumes and job offers are encoded once and reused straight from the database rather than being processed at each request.

I built the pipeline that turns resume documents into text, using an LLM extraction to convert the text into structured JSON, creates embeddings, and saves the output in a vector database. This newly developed procedure lowers latency and facilitates system scaling as the dataset expands.

The matching logic, CV parsing, and search endpoints are exposed by the FastAPI-built backend. A frontend React interface enables users to perform matching operations and receive ranked recommendations. The complete solution is deployed as a single repository using Docker, GitHub Actions, Render for the frontend, and Google Cloud Run for the backend.

The project can be consulted here:

<https://github.com/KaloinaMelodie/Matching-monorepo>

CONTACT

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Nationality Malagasy

EDUCATION

Master's Degree in Modeling and Data Science - MBDS (Mobiquity, Big Data and Systems Integration)

Universit   C  te d'Azur, Nice

2024-2025

Master's Degree in Computer Science (M1)

IT University, Madagascar

2024

Bachelor's Degree in Computer Science, Application Development (Programming)

IT University, Madagascar

2023

LANGUAGES

English	Intermediate
French	Advanced
Malagasy	Native

Optimization of Monitoring and Evaluation System
with an Intelligent Digital Assistant – Master’s Final
Project 2025

As part of my Master’s program, I develop an intelligent digital assistant designed to strengthen the monitoring and evaluation system MGMERL used by UNICEF WASH Madagascar and its partners. The project addresses the difficulty many users face when navigating complex datasets and interfaces by providing a tool that guides them, simplifies access to information, and delivers training modules integrated into the workflow.

I manage the ingestion of heterogeneous data at scale through a Hive-based datalake, handling formats such as JSON, Parquet, pptx, pdf, and CSV, and applying normalization strategies to ensure consistency. I design and orchestrate distributed integration pipelines with n8n, including error handling, retry mechanisms, and latency optimization, while also implementing large-scale data processing with Spark and Hadoop MapReduce to meet scalability requirements.

I integrate advanced AI features such as embeddings, retrieval augmented generation, and large language models to enable semantic search and contextual assistance. The backend relies on a modular and service-oriented architecture that allows the progressive addition of independent components.

The official thesis document for my project can be accessed at the link below.

<https://jumpshare.com/share/aydw0o8fCHXxyJHrefFZ>

TRAINER AT ORANGE DIGITAL CENTER 2024

I had the opportunity to work as a volunteer trainer at Orange Digital Center, where I helped learners learn the basics of programming. My role was to teach the C language, with the goal of helping participants transform a real-world problem into a computer solution, understand what happens behind the code, and become familiar with the programming language. This experience allowed me to share my passion for programming.

Mobile Game for Climate Awareness – UNFPA
Madagascar and COP28 Presentation 2023

I collaborated on the creation of a climate-themed mobile app designed for children and young people within the UNFPA Madagascar innovation space. The aim of this app is to teach children and young people what helps or harms the Earth.

I had the opportunity to represent the United Nations Population Fund in Madagascar as a youth delegate at COP 28, where I also had the chance to present my team's project. The game consists of a ball rolling along a three-lane road. The user can move the ball to the left or right and can also jump to avoid obstacles or catch energy sources. This application was created using Unity and the C# programming language.

Here is the link to the folder containing images and the APK file

<https://jumpshare.com/folder/SZ45L4KBrsvbs0jU7bbw>

https://drive.google.com/file/d/1jLd_1YfTORjMSwOEL9G5wXQHUP7tBkaj/view?usp=drive_link

<https://www.thenationalnews.com/climate/cop28/2023/12/08/young-cop28-delegates-aim-to-make-better-world-for-future-generations/>

TECHNICAL SKILLS

PROGRAMMING LANGUAGES

- Java (Spring Boot, MVC, Core, Hibernate)
- C# (.NET)
- Python (Django, Data Engineering, Machine Learning, FastAPI)
- R (Data Engineering, ML)
- PHP (Laravel, CodeIgniter)
- JavaScript (React.js, Node.js, AngularJS, Next.js)
- Ruby (Rails)
- Kotlin (Android)
- Ionic

CLOUD & INFRASTRUCTURE

- AWS (Cloud Foundations, IAM, VPC, EC2, Beanstalk, S3 storage, DynamoDB)
- Google Cloud Platform (Cloud Run, Vertex AI, Cloud Storage)
- Docker & Containerization
- CI/CD Pipelines (GitHub Actions, Webhooks)

OPERATING SYSTEMS

- Windows
- Linux

TOOLS & ENVIRONMENTS

- GitHub, GitLab
- IDEs: IntelliJ IDEA, NetBeans
- Postman, Insomnia
- Visual Paradigm (MCD)
- Google Analytics, Looker Studio

FRAMEWORKS ARCHITECTURE

- Spring Framework
- REST APIs
- Microservices
- Modular backend architectures

DATABASES

- MySQL
- SQL Server
- PostgreSQL
- MongoDB
- Oracle / Oracle NoSQL
- DynamoDB.
- HBase

DATA ENGINEERING

- Hadoop Ecosystem (HDFS, Hive, MapReduce, YARN)
- Spark (PySpark, DataFrames, SQL, ETL/ELT workflows)
- Milvus Vector Database
- n8n : Data Workflows

BACKGROUND

In my Master 2, I have focused on data engineering and intelligent systems. I work with datalakes to handle heterogeneous datasets, build distributed pipelines, and apply MapReduce and Spark for large-scale processing. I train machine learning models by preparing datasets, compare existing algorithms, testing different approaches, and keeping the one that gives the most stable results. I also design relational and NoSQL databases, integrate systems through APIs, and connect data workflows end to end. I work with embeddings, vector search, retrieval-augmented generation, and I design modular backends to support these features. On the mobile side, I have experience with Android and PWA using Ionic, and I am adding Swift/SwiftUI for iOS.

At UNICEF WASH Madagascar, I applied these skills by creating interactive dashboards, designing and adapting data collection forms, integrating data coming from IoT devices, and improving data reliability through deduplication and validation processes.

During my Master 1 at IT University, I strengthened my foundations in cybersecurity, software development, and data analysis, while learning how to better understand and optimize application performance and system behavior.

I also received hands-on training across the full machine learning lifecycle:

identifying the appropriate learning paradigm, collecting and preprocessing data, addressing issues such as outliers, missing values, and imbalanced datasets, applying statistical methods for analysis and visualization, selecting and training models, evaluating their performance, and deploying robust and scalable solutions.

Beyond the technical side of my work, I've built a solid foundation in managing software projects with Scrum. I know how to work with stakeholders to clarify what they really need, turn their ideas into concrete proposals, and adapt my communication to their context so expectations and constraints are clearly understood.

I can specify both functional requirements and non-functional ones such as performance, reliability, scalability or maintainability and make sure the technical plan stays consistent with them as the project evolves. On the engineering side, I'm able to design system architectures, check that the design matches the requirements, and contribute to software and hardware choices.

I also know how to organise parallel development work across different roles, structure deliverables, and plan integration steps. Finally, I know how to implement deliverables and running integration tests to ensure that all components work properly together.

QUALITIES

- Flexibility in learning: Although my current list of tools and languages is listed above to describe my current skills, I do not limit myself and am capable of learning new languages or software.
- Problem-solving mindset: As a developer, solving problems is a core part of my work, and it's something I genuinely enjoy, whether it's at the technical level or in the overall system design.
- Project management and Agile awareness: I'm familiar with Agile ways of working and can adapt to changing requirements while still keeping development and delivery efficient.
- Autonomous and organized: I know how to manage my time, work independently or within a team, and prioritize multiple tasks so that deadlines are respected.
- Client-focused approach: I'm able to analyse a client's idea, make concrete suggestions, and help improve their initial concept so that the final solution is coherent and realistic.

ADDITIONAL INFORMATION

Github

<https://github.com/kaloinamelodie>

Linkedin

<https://www.linkedin.com/in/kaloina-melodie-ravoahangilalao-882650252/>