

Hasham Abdullah

Data & AI Engineer

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SUMMARY

I am a Junior **Data & AI Engineer** who graduated with distinction in Applied Computer Science from Karel de Grote Hogeschool (KdG), specializing in Artificial Intelligence. I turn unstructured data and complex workflows into practical, production-ready solutions by building semantic retrieval pipelines, Retrieval-Augmented Generation (RAG) and agentic workflows, automated process integrations, and machine learning services. I bring hands-on experience bridging AI tools, APIs, and structured data with reliable systems that save teams time in daily operations.

WORK EXPERIENCE

Nalantis NV | Antwerp, Belgium

AI & Data Engineer Intern **March 2026 - June 2026**

- Engineered a multi-stage neural retrieval pipeline using **Python, FastAPI, and Bi-Encoders** to rapidly filter large unstructured text datasets and optimize semantic search relevance.
- Implemented an intelligent agentic scoring and re-ranking system leveraging **Cross-Encoders** to precisely evaluate and surface candidate profiles based on contextual criteria.
- Integrated an automated **LLM-as-Judge** evaluation framework paired with a clean management user interface to streamline automated model assessment and scoring workflows.
- Optimized the core ranking engine and vector data components using **Docker** to achieve robust sub-500ms production latency during high-volume inference cycles.
- Processed data ingestion and text preprocessing pipelines within a production-grade NLP environment, collaborating closely with technical teams to refine model output precision.

The Smart Meal Planner AI | Studio Vinnie | Graduation Project

Data & AI Software Engineer **Jan 2026 - March 2026**

- Led an agile development team of three, facilitating client alignment meetings to collect requirements, iterate on user feedback, and deliver a data-driven SaaS platform using **Next.js, React, and TypeScript**.
- Engineered an interactive Retrieval-Augmented Generation (**RAG**) "Kitchen Helper" agent powered by **OpenAI and Groq (Llama)** to process real-time cooking assistance, recipe data retrieval, and dynamic ingredient substitutions based on user profiles.
- Streamlined non-blocking LLM data streaming via **Server-Sent Events (SSE)** integrating OpenAI and Groq (Llama) models into application workflows to deliver real-time recipe modifications.
- Structured relational data storage using **PostgreSQL and Drizzle ORM** to feed structured user profiles, dietary preferences, and nutritional data into intelligent AI pipelines.
- Automated weekly meal history tracking and instant shopping list compilation directly from customized meal plans, saving planning time and optimizing data workflows.

EDUCATION

Bachelor's in Applied Computer Science | Karel de Grote-Hogeschool (KDG) | Antwerp, Belgium **2023 - 2026**

Graduated with Distinction in Applied Computer Science specialisation in Applied Artificial Intelligence.

SKILLS

- **AI & Machine Learning:** Machine Learning, Deep Learning (PyTorch), Generative AI & LLMs, RAG, Agentic Workflows, Semantic Search (Bi-Encoders & Cross-Encoders).
- **Software Development & Databases:** Java (Spring Boot, JPA), Python (FastAPI), SQL, PostgreSQL, MongoDB, Vector Databases (ChromaDB), REST APIs.
- **Data Engineering, BI & Analytics:** Apache Spark (PySpark), ETL Pipelines, Data Warehousing (Star Schema), Data Analytics, Business Intelligence (Power BI), Pandas, NumPy, Scikit-Learn.
- **Automation, DevOps & Tools:** n8n, Make.com, Webhooks, Google Workspace APIs, Docker, Git, CI/CD (GitHub Actions), Linux, Jira, Agile/Scrum.

PROJECTS

Bikeshare Data Warehouse & BI Analytics Pipeline **2025**

- Built an end-to-end Data Warehousing and ETL pipeline using **PySpark**, **Delta Lake**, and **PostgreSQL** to ingest, clean, and transform Antwerp bikeshare transit logs and external weather data.
- Designed a **Star Schema** in PostgreSQL (FactRides linked to Date, Station, User, Vehicle, and Weather dimensions) with automated outlier filtering and incremental data updates to keep records synced efficiently.
- Developed interactive **Power BI** dashboards connected to the data warehouse to analyze ride trends, station usage, and weather impact for operational reporting.

AI Gaming Suite | Distributed Team Project **2025**

- Architected an enterprise gaming platform using a **Spring Modulith** core, enforcing strict compile-time domain boundaries between platform services, lobbies, and achievements.
- Developed a high-performance Python **Monte Carlo Tree Search (MCTS)** game engine logging state evaluations to PostgreSQL to build training datasets for optimized neural networks.
- Engineered a **RAG** chat assistant using **FastAPI**, **ChromaDB**, and **OpenAI** to stream context-aware gameplay answers, backed by a **React 19** frontend and **Docker** deployment.

LANGUAGE

- English
- French
- Dutch (Limited Working Proficiency)

INTERESTS

- **Tech & Culture:** Exploring emerging generative AI models, smart automation, historical/geopolitical documentaries, and connecting across diverse cultural backgrounds.
- **Football & Culinary:** Following international competitions and tactical match analysis, and experimenting with diverse recipes and flavors.

References from academic faculty and internship management available upon request.