Mateusz Jakubczak

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Profile

Pragmatic AI Engineer bridging the gap between technical complexity and business value. Leverages a dual background in **Computer Science and Economics** to identify and solve the *right* problems, ensuring AI investments yield tangible ROI. Combines the operational rigor of **Goldman Sachs** with the agility of startup environments to deliver secure, scalable, and purpose-driven AI architectures. Focused on practical, production-ready solutions (**GCP, AWS**) rather than hype-driven development.

Technical Skills

- **Cloud & MLOps: GCP**, AWS, Docker, Kubernetes, Terraform (IaC), CI/CD, ETL Pipelines, Model Deployment, System Architecture and Design
- **AI/ML Frameworks:** Pandas, NumPy, Scikit-learn, PyTorch, Django, FastAPI, Langchain, LangGraph, LangFuse, Large Language Models, Vector Databases (pgvector, Milvus), NLP, Advance RAG techniques. Prompt and context engineering.
- **Languages & Databases:** Python (Expert), Java (Proficient), SQL (MySQL, Postgres), MongoDB
- **Practices:** Automation, Security Best Practices, Test-Driven Development (TDD), Agile Methodologies

Professional Experience

Quickchat.ai (AI-first Startup) — Warsaw, Poland

Machine Learning Engineer — *Aug 2023 – Present*

- Engineered a secure, multi-tenant chatbot platform using **LLMs**, **Langchain**, and **vector databases**, focusing on robust B2B client data isolation and system reliability.
- Architected and operationalized a state-of-the-art Retrieval-Augmented Generation (RAG) pipeline, implementing advanced retrieval strategies to enhance response relevance and minimize model hallucinations in a production environment.
- **Led the end-to-end migration from on-premise servers to a scalable cloud infrastructure on GCP**, authoring **Terraform** scripts for IaC, configuring automated **CI/CD pipelines**, and containerizing all services with **Docker**.
- Championed a robust software development culture, introducing **TDD** and structured **PR review methodologies**, which substantially reduced downtime and enhanced code security and quality.

Goldman Sachs — Warsaw, Poland

Analyst, Market Data Platform — *Jan 2022 – Jul 2023*

- Developed and supported a high-throughput, low-latency market data platform processing millions of events per second, adhering to the stringent security and reliability standards of the financial industry.
- Played a key role in the strategic **migration of on-premise systems to a private cloud using Kubernetes**, upgrading core services to **Java 17** and enhancing system scalability, automation, and maintainability.
- Designed and implemented a data quality monitoring system that proactively identified anomalies in live data streams, ensuring data integrity and system reliability for critical financial operations.
- Optimized critical **MongoDB** queries through advanced indexing and query restructuring, significantly boosting system efficiency in a high-demand, low-latency environment.
- **Automated key operational workflows** and deployment procedures using Python and internal tooling, reducing manual intervention for system restarts and patches by over 90%.

Summer Analyst — *Jul 2021 – Sep 2021*

- Designed and built a comprehensive Data Quality Assurance service from the ground up, providing critical validation and integrity checks for a new data ingestion platform.

AMRON (Polish Bank Association) — Warsaw, Poland

Data Consultant — *Nov 2020 – Jan 2021*

- Re-architected a critical data processing pipeline in **Python**, **automating data cleaning and feature engineering** steps, which reduced data preparation time by over 75%.
- Developed and validated a time series forecasting model (**ARIMA**) for the Polish real estate market, which outperformed the existing benchmark model in predictive precision.

Projects & Competitions

Invited Speaker – Foundation Conference 2025
We tested DeepSeek. Here's what you need to know

- Presented a technical and strategic analysis of the trade-offs between AI model quality, speed, and infrastructure cost for an audience of industry professionals.

Supervision Hack 2023 – 2nd Place
Financial Stability Monitoring Tool for KNF (Polish Financial Supervision Authority)

- Built a large-scale web scraping and NLP solution to analyze public data, using **AI sentiment analysis** and anomaly detection to identify early warning signs of bank insolvency.

Supervision Hack 2022 – 1st Place
Automated Risk Classification from Financial Documents

- Developed a novel system combining web scraping, PDF data extraction (**OCR**), and a **Computer Vision** model to automatically classify risk levels from KIID documents, automating a key regulatory task.

Datathon 2022 – 1st Place
Refugee Crisis Management Dashboard

- Created a dynamic dashboard integrating data from 3 government **APIs** to provide real-time insights for crisis response, aiding resource allocation and support efforts.

CuValley Hack 2021 – 1st Place
Predictive Control System for KGHM Copper Smelter

- Developed a winning AI-powered control system to stabilize and optimize a primary smelting furnace.
- **Led the post-hackathon production deployment**, collaborating directly with KGHM engineers to transition the prototype into a live, operationalized system that is **now in continuous operation**.
- Engineered a full MLOps pipeline using **Python**, **scikit-learn**, and real-time process data to predict heat loss and automatically regulate furnace parameters.

propertly.io (Side Project) *2020 – 2023*
A platform for real estate agents to track and manage the services of their clients.

- Developed a scalable web scraping system to aggregate thousands of listings from major Polish real estate portals, ensuring a constant flow of up-to-date market data.
- Developed a machine learning pipeline to improve data quality, utilizing **NLP** and unstructured text analysis to parse, clean and standardize listing information.

Education

University of Warsaw, Faculty of Economic Sciences Warsaw, Poland
Master's degree in Economics *Oct 2021 – Jun 2023*

- **Thesis:** *Insulating Borrowers from Rate Shocks: A DSGE Study of Credit Subsidies in the Real Estate Market.*

AGH University of Science and Technology Cracow, Poland
Bachelor of Science in Computer Science and Econometrics *Oct 2018 – Jun 2021*

- **Thesis:** *Modelling Electrical Energy Consumption in European Countries using Machine Learning Techniques.*