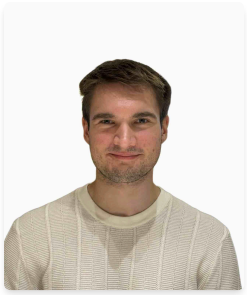

Mateusz Kędzia

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Job Intention

Job Type: AI/ML Engineer & Research Scientist

Self-Assessment

An experienced AI engineer and machine learning specialist with expertise in developing autonomous agents, LLM-powered applications, and scalable AI systems. Proficient in building RAG architectures using LangGraph and LangChain, designing multimodal AI solutions, and deploying production-ready AI tools. During my academic and professional journey, I have led projects involving IoT data processing, geospatial analysis, and commercial AI product development. My work spans from research-oriented machine learning systems to enterprise-grade AI applications, with a proven track record of improving operational efficiency and delivering innovative solutions. Passionate about advancing AI technology and contributing to cutting-edge developments in autonomous systems and intelligent agents.

Education Background

2023.09 - 2025.08 | Vrije Universiteit Amsterdam
Artificial Intelligence, *Master's*

2019.09 - 2023.08 | Vrije Universiteit Amsterdam
Artificial Intelligence, *Bachelor's*

Language Abilities

Polish (Native)
English (Fluent)
Chinese (HSK2)
Spanish (Basic)
Dutch (Basic)

Major Projects and Achievements

AI Engineer & Product Developer
Beijing ZhaoQianGuCao Biotechnology Co., Ltd. (June 2025 - Present)
Background: Contributing to AI innovation in a rapidly growing company.
Task: Developing internal AI-powered tools and designing software products.
Action: Implementing RAG systems, building summarization engines, and integrating LLMs for workflow automation.
Result: Establishing foundation for improved operational efficiency and commercial AI products.
Reflection: Gaining valuable experience in enterprise AI deployment and product development.

Master's Thesis: Synthetic Spatio-Temporal Ride-Hailing Traffic Knowledge Graph (In Progress)
(2024.07-2025.03)
Vrije Universiteit Amsterdam & Beijing University of Technology
Background: Urban transportation research requires advanced spatio-temporal data modeling and classification methods.
Task: Develop and evaluate large-scale spatio-temporal knowledge graph generation and trajectory classification algorithms.
Action: Designed and implemented models based on GAN, LSTM-AE, and SSVM, conducting comprehensive benchmark testing.
Result: Advanced cutting-edge research in urban transportation data analysis and contributed to academic papers.
Reflection: Deepened my professional capabilities in spatio-temporal modeling and enhanced my ability to solve open research problems.

HedgeIoT: IoT Data Science Platform and Machine Learning Engineering
Vrije Universiteit Amsterdam (2024.07-2024.09)
Background: The university needed a scalable collaborative IoT and machine learning research platform.
Task: As a research assistant, responsible for platform design and deployment, implementing real-time data

workflows.
Action: Built and deployed a Dockerized JupyterHub platform supporting 50+ users, designed real-time data collection and machine learning pipelines, led conference demonstration development.
Result: Platform achieved efficient collaboration and real-time data analysis, showcased at HedgeIoT conference, supporting 50+ researchers.
Reflection: Enhanced large-scale system design, cross-team communication, and practical machine learning deployment capabilities.

Dutch News Archive Web Crawler
University of Amsterdam (2022.02-2025.03)
Background: Large-scale research requires high-integrity news datasets.
Task: Develop efficient web crawler for automated data extraction and structuring.
Action: Implemented anti-blocking and relevance filtering algorithms, automated processing of over 1 million news articles.
Result: Achieved 99% data integrity, providing reliable datasets for research.
Reflection: Enhanced automation, data quality assurance, and large-scale data engineering capabilities.

Bachelor's Thesis: Explainable AI Processing of Heterogeneous IoT Data
Vrije Universiteit Amsterdam
Background: Integrating multi-source IoT data requires transparent, interoperable, and explainable AI solutions.
Task: Design explainable models and data pipelines to unify heterogeneous IoT data.
Action: Developed device behavior prediction models, implemented data integration based on RDF and SPARQL, ensuring model explainability.
Result: Delivered robust IoT data integration and prediction system, achieved 8.0 grade, demonstrating practical value of explainable AI and semantic data integration.
Reflection: Strengthened foundations in semantic data integration, time series prediction, and AI transparency.

Technical Skills

Programming: Python (Advanced), Bash, SQL

Machine Learning & Data: PyTorch, TensorFlow, scikit-learn, XGBoost, Pandas, Polars, NumPy, Pydantic

AI Agents & LLM Frameworks: LangGraph, LangChain, LangSmith, Prompt Engineering, RAG Systems, Multi-agent Orchestration

LLM Development & Evaluation: Model Fine-tuning, Evaluation Dataset Creation, Performance Benchmarking, A/B Testing for AI Systems

Web/API: FastAPI, Flask, Django, Streamlit

NLP & Large Models: Transformers (Self-developed), Hugging Face (Speech Detection, Image to LaTeX), spaCy, NLTK, OpenAI API, Claude API

Data Engineering: GeoPandas, NetworkX, OSMnx, RDFlib, GraphDB, JupyterHub, Grafana, Vector Databases

DevOps: Docker, Docker Compose, NGINX, CI/CD, Linux (6+ years daily use)

Remote/Advanced: NVIM/LunarVim, Python multiprocessing/multithreading, LaTeX, Markdown

Leadership & Communication

Served as Chairman of Communication Committee in Faculty of Science Student Council: chaired meetings, assigned tasks, coordinated communication.
Led practical courses and guided 10+ students in machine learning and data projects.

Core Courses

Deep Learning: Custom CNN, DNN implementation

Natural Language Processing: Transformers, Hugging Face, Advanced NLP

Data Mining Techniques: XGBoost ranking, Kaggle competitions

Reinforcement Learning Projects: Data center optimization RL

Conversational Robot: Dialogue agent based on OpenAI API, won first place in class competition (1/8 teams)

Evolutionary Computing: Custom evolutionary algorithms for game AI