Martyna Rachańczyk

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SUMMARY

AI Engineer with a solid background in developing advanced AI applications and scalable cloud infrastructure. Experienced in **LLMs, retrieval-augmented generation (RAG), and vector databases**, with expertise in frameworks like **LangChain, LangGraph and LlamaIndex**. Skilled in designing modular, efficient pipelines and scalable solutions on **AWS**, with a proven track record of innovation in AI-powered tools and search systems. Passionate about applying AI to solve real-world challenges, writing technology-focused articles, and delivering engaging presentations on AI and machine learning.

WORK EXPERIENCE

AI Engineer | PKO Bank Polski   Nov 2024 - Present

- Utilized the vLLM library to enhance AI inference efficiency, reducing latency in processing customer queries.
- Designed and implemented a RAG system for scanned documents using the Docling library for OCR, combined with ElasticSearch, PostgreSQL, and GCS, delivering high-performance search functionality for financial documents.
- Conducted experiments with RAG pipelines, optimizing retrieval accuracy through hybrid search techniques and parameter tuning.
- Developed custom metadata strategies to improve search precision across structured and unstructured datasets, including scanned documents.
- Managed GKE pods for AI workloads, ensuring seamless system integration and operational efficiency.

AI Engineer | Chaos Gears   Mar 2024 - Nov 2024

- Created infrastructure on AWS using Terraform (IaC) and Terragrunt for AI assistant applications written in Python, utilizing a vector knowledge base in OpenSearch.
- Streamlined the RAG process with advanced techniques, including:
  - Reranking: Enhanced search relevance by reordering results.
  - Query RAG Fusion: Combined results from different search methods for comprehensive answers.
  - Hybrid Search: Integrated traditional and semantic search for robust query handling.
- Generated test sets and conducting thorough evaluations using RAGAS or promptfoo after each new implementation.
- Experimented with model parameters to optimize accuracy and retrieval performance.
- Developed and managed CI/CD pipelines using GitHub Actions to automate deployments.
- Developed an AI-driven sales reporting platform on AWS Databricks, automating daily, weekly, and monthly report generation with Delta Lake storage.
- Enhanced reports using Generative AI via AWS Bedrock and Amazon SageMaker for natural language summaries, trend analysis, and anomaly detection.
- Delivered actionable insights through Databricks SQL Dashboards, improving decision-making and operational efficiency.
- Worked in a Linux Ubuntu OS environment, ensuring compatibility and high performance.
- Gathered requirements from external clients regarding application performance and designed templates to collect structured feedback.

Generative AI Engineer | Orange   **Apr 2023 - Mar 2024**

- Developed modern applications leveraging LLMs, working extensively with LangChain and APIs from platforms like Google Model Garden (Gemini Pro), OpenAI, Anthropic, and Hugging Face.
- Implemented text segmentation and embedding creation pipelines, integrating with vector databases to significantly improve data retrieval for API Assistants and function-calling workflows.
- Designed a knowledge base using ChromaDB to store and manage candidate information, contract details, and tabular contract data, enhancing search precision in structured documents like manuals.
- Introduced a chapter-based text segmentation method, enriched with metadata, to improve document retrieval.
- Processed multimodal data using Vertex AI and Google Gemini Pro, extracting structured information from images, including receipts and invoices, and integrating extracted data such as dates, amounts, and contractor details into tabular formats.
- Built user-facing applications in Streamlit, including a Data Analysis Assistant to analyze CSV data, calculate costs, generate charts, and produce summary tables, as well as a Recruitment Assistant to streamline HR workflows.

Business Intelligence Assistant | Publicis Groupe   **Apr 2023 - Mar 2024**

- Designed and implemented SQL queries to extract and manipulate data, optimizing performance and ensuring accuracy in data retrieval from PostgreSQL databases.
- Utilized advanced PostgreSQL features for data analysis, including window functions, common table expressions, and indexing strategies to handle large datasets efficiently.
- Developed Python scripts to automate data processing tasks, including data cleaning, transformation, and integration, enhancing workflow efficiency.
- Created dynamic reports and dashboards using VBA and Python libraries to visualize complex data and provide actionable insights.

EDUCATION

Bachelor of Management and Artificial Intelligence

Kozminski University in Warsaw

- Thesis on "The role of artificial intelligence in supporting mental health care - exploring the capabilities of the GPT models".

AI & Data Science Program

Kodołamacz
Completion Date: April, 2025

- Over 420 hours of intensive training in Artificial Intelligence, Data Science, and related technologies.
- Gained hands-on experience in building machine learning models, data analysis, and implementing AI solutions.
- Covered advanced topics like computer vision, reinforcement learning, and practical AI applications.

ADDITIONAL INFORMATION

- **Languages:** English Advanced
- **Certifications:** AWS Certified Cloud Practitioner (2024)