

MATTHIAS REBEL

SENIOR SOFTWARE ENGINEER

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I'm a passionate software developer who pairs deep technical expertise with a wide strategic lens. My background in computational linguistics lets me weave human-language technologies, machine learning, and AI into products that engage users and unlock new value. I'm currently diving into multi-agent systems—exploring how autonomous agents can cooperate to solve problems.

Whether I'm building large-scale NLP pipelines or refining user flows, I keep one eye on the technical detail and the other on the bigger business goal. I thrive on continuous improvement: digging into complex topics, sharing what I learn, and iterating quickly through agile practices and automation. That mix of specialization and generalist mindset helps me deliver high-impact, real-world solutions on fast timelines.

I approach every project with curiosity, empathy, and a bias for action—aligning smart technology choices with clear business outcomes.

SKILLS

PROGRAMMING LANGUAGES

PYTHON PHP JAVASCRIPT

BACKEND TECHNOLOGIES

NODE.JS POSTGRESQL REDIS ELASTICSEARCH

DEVOPS & INFRASTRUCTURE

DOCKER AWS GITLAB JENKINS ANSIBLE TRAEFIK

FRAMEWORKS & TOOLS

FASTAPI DRUPAL MAKE GITLAB CI

CONCEPTS & ARCHITECTURES

SERVERLESS ARCHITECTURE MICROSERVICES ARCHITECTURE CI/CD PIPELINES
CONTAINERIZATION OPENAPI SPECIFICATION

AI & DATA TECHNOLOGIES

NATURAL LANGUAGE PROCESSING MACHINE LEARNING MCP A2A

EMPLOYMENT

Senior Software Engineer,

2018-10 —
Present

Led full-stack development and AI integration for a range of mission-critical projects, aligning deep technical implementation with strategic business goals. Spearheaded initiatives in automation, NLP, and secure systems design—contributing to product innovation, user engagement, and operational efficiency across the organization.

- Designed and implemented an AI-powered tool integrating chatbot capabilities with automated email responses, leveraging the company's knowledge base and ChatGPT (Docker, Python, FastAPI, OpenAI, Redis, JavaScript, Vue.js, GitLab CI).
- Engineered APIs for Belenios secure cryptographic online voting system integration, supporting 60,000 users and processing 600 votes per 30 seconds (Python, FastAPI).
- Built and maintained a scalable content pool aggregating news and events data for seamless mobile app integration (Python, Elasticsearch).
- Developed a custom Drupal module with AI-driven, NLP-enhanced search functionality (PHP, Python, Watson, spaCy, Elasticsearch).
- Optimized team Git workflows and CI/CD pipelines, significantly reducing deployment time and boosting collaboration efficiency (Git, GitLab, Make, Ansible).

- Organized and hosted local Drupal Meetups, driving community engagement and knowledge sharing.

Software Engineer,

2011-12 — 2018-07

Owned core architecture and development of real-time, high-performance systems in a fast-paced consulting and product delivery environment. Delivered robust microservices and data pipelines that enabled personalization, automation, and scalable deployment—earning top feedback in [performance review](#).

- Developed a real-time stream processing pipeline and personalization algorithm for adaptive content delivery (Python, Flask, Kafka, Elasticsearch).
- Provided technical consultancy to enterprise clients, guiding architecture decisions and best practices across projects.
- Led refactoring of legacy monoliths into containerized microservices, introducing CI/CD automation and scalable infrastructure.
- Designed and implemented a web-based GUI for a Translation Management System with seamless frontend-backend integration (AngularJS, Tornado, Elasticsearch).
- Developed a relation extraction system for short message analysis, enabling efficient insights from unstructured text data.

Student Researcher,

2009-05 — 2011-04

As a Student Researcher at DFKI GmbH in Berlin (2009–2011), contributed to the development of a multilingual mobile dialogue assistant. Designed a classification algorithm to detect question–answer pairs and improved dialogue structures for a diploma thesis project. Positive feedback in [performance review](#).

- Developed multilingual mobile dialogue assistant (PHP, Objective-C).
- Designed classification algorithm for question-answer pair detection.
- Enhanced user interaction and dialogue structures for diploma thesis project.

Student Researcher,

2006-03 — 2009-02

- Converted Word documents to XML for eXist-db (Python, Tomcat).
- Developed data retrieval interface for project website (Python).
- Built CMS for personal staff websites (Python).

Media Educator,

2003-09 — 2005-07

- Conducted lectures on computer interaction for children.
- Delivered training in Photoshop and digital drawing for trainees.

? EDUCATION

Universität Potsdam

2005-10 — 2011-10

Wessenberg Gymnasium

??? — 1999-05

? SERVICE

Volunteer, PyData Berlin 2016

2016-05

Supported event logistics and speaker coordination at PyData Berlin 2016, a community-driven conference focused on data science, machine learning, and Python. Helped ensure smooth operations for over 500 participants, gaining exposure to cutting-edge industry discussions and strengthening ties within the open-source Python and data science community.

WRITING

Optimierung der Dialogstrukturen einer bilingualen elektronischen Kommunikationshilfe, Diploma thesis at Universität Potsdam

2011

Computer Assistance in Bilingual Task-Oriented Human-Human Dialogues, In Proceedings of the 14th International Conference on Human-Computer Interaction

2011