

MARTIN HÄCKER

Senior Software Engineer and Solution Architect for backend systems, platform engineering, and AI integration; technical leadership in system modernization and cross-team architectural decisions..

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CORE COMPETENCIES

Software Architecture & Backend Development

Architecture and development of complex web and backend systems, API design, legacy modernization, test-driven development, refactoring, automated testing.

DevOps & Site Reliability Engineering

Automated operation of distributed systems on Linux; Infrastructure as Code, monitoring/observability, high availability, deployment automation.

AI Integration & Data Analysis

Evaluation and integration of modern AI technologies (LLMs, embeddings) into existing systems; data analysis and experimental evaluation of ML approaches.

Technical Mentoring & Engineering Organization

Code reviews, pair programming, architectural work (ADR), cross-team technical standards, and developer team coaching.

TECHNOLOGIES (FOCUS AREAS)

Languages

Python, Shell

Backend / Frameworks

Flask, Pyramid, SQLAlchemy, Alembic, Jinja, REST APIs

DevOps / Platform

Kubernetes, Helm, Docker, Ansible, Terraform, Nix, GitLab CI

Observability

Prometheus, Grafana, Loki, Icinga

Databases

PostgreSQL, CockroachDB, MySQL, SQLite, Redis

Security / Identity

OAuth2, OpenID Connect, LDAP, secrets management

Additional Experience

Linux administration (Debian, Red Hat/CentOS, NixOS), *load balancing and web infrastructure* (nginx, HAProxy), *container and platform operations*, *CI/CD pipelines*, *GitOps*.

Previously Used Technologies (Selection)

JavaScript frameworks, R, Objective-C, C/C++, Java, Puppet, Jenkins, various databases and build systems.

PROFESSIONAL EXPERIENCE

Senior Developer / Solution Architect / Engineering Lead, mkk¹ (statutory health insurance, ~1,500 employees), Berlin **4.2022-present**

Senior Developer → Solution Architect / Engineering Lead
Backend systems, DevOps/SRE, AI implementation

Summary

Technical lead for the modernization of core backend and document processing systems as well as platform infrastructure; architectural decisions, technology selection, and migration-safe replacement strategies for legacy systems. Development of DevOps/SRE structures and introduction of AI technologies. Establishment of cross-team architectural decisions (ADR), technical coaching, and improved developer collaboration.

Key Contributions

Legacy Integration / Backend API

¹ <https://www.meine-krankenkasse.de/>

Architecture and development of a central integration API to abstract multiple legacy systems (Python/Flask, SQLAlchemy); improved testing strategy and CI pipelines as well as unification of development toolchains and CI pipelines.

Document Processing – Legacy Replacement

Design and implementation of a rule-based processing engine to replace a ~50k LOC legacy system handling several million documents per year. Migration strategy with parallel operation of old and new systems along with replay tooling for analyzing decision discrepancies; rules as versioned YAML configuration (GitOps).

AI-based Document Classification

Evaluation and prototype of an AI-based document classification system for ~3.6 million incoming documents/year; comparison of classical ML methods and LLM-based approaches, with best results achieved through embedding-based classification across multiple organizational levels. Result: 80% correct classification (baseline ~30%); goal of halving manual classification achieved.

Platform & SRE

Migration from VM-based infrastructure to Kubernetes (Helm, Operators) and setup of an observability stack (Prometheus, Grafana, Loki). Operation and integration of PostgreSQL and CockroachDB clusters as well as deep analysis of production issues (system, network, and TLS debugging).

Developer Experience & Platform Tooling

Introduction of reproducible development environments (Nix-based) and unified toolchains and CI automation to enhance developer productivity and reduce cross-team friction.

Engineering Governance & Organization

Reorganization of a cross-team architecture forum and introduction of Architecture Decision Records (ADR) as a lightweight decision-making process for technical direction. Establishment of shared technical standards and decision structures across teams; co-building an SRE/Security Engineering team.

Training & Knowledge Building

Train-the-trainer programs on AI technologies for business units as well as training on secure coding, shell tooling, and modern Linux/DevOps practices.

Technologies (Selection)

Python, Flask, SQLAlchemy, Kubernetes/Helm, Prometheus, Grafana, Loki, PostgreSQL, CockroachDB, Nix, GitLab CI, OpenWebUI/LLMs.

Software Architect and Full-Stack Developer (initially primary role, since 2022 ~1 day/week alongside mkk), SNTL-Publishing², Berlin 7.2011-present

Architecture and implementation of a distributed real-time gaming platform for up to ~5,000 concurrent users (stateless backend, asynchronous game servers, load balancing, and dynamic scaling) as well as setup and operation of hosting infrastructure for several products.

Key Contributions

Real-Time Gaming Platform

Architecture and implementation of a distributed gaming platform for thousands of concurrent users; separate backend and game server architecture (stateless backend + asynchronous game servers) with load balancing and dynamic scaling of game servers. Mechanisms for automatic user redistribution and “draining” of game servers for low-maintenance operations.

Learning and Analytics Platform

Backend for user, game, and content management as well as statistical evaluation of game results. Implementation of learning progress analysis based on the Rasch model for assessing knowledge levels.

Platform Operations & Infrastructure

Design and operation of a highly available hosting infrastructure (~32 servers) for the aforementioned gaming and learning platforms and other systems; automated deployment, monitoring, and failover mechanisms. Infrastructure automation with Ansible (migration from Puppet), monitoring/alerting with Icinga, and operation of web, database, and email infrastructure.

² <https://www.sntl-publishing.com/>

Operations & Lifecycle

End-to-end responsibility for the software lifecycle from conceptualization through implementation to operations and support in a small development team.

Technologies (Selection)

Python (2/3), Tornado, Pyramid, Flask, SQLAlchemy, scipy, pandas, Jupyter, R, JavaScript, Backbone, Marionette, Bootstrap, HTML/CSS, MySQL, Redis, nginx, HAProxy, Docker, Ansible, Jenkins, Icinga, Linux (Red Hat/CentOS, Debian).

Software Developer, Pharmacy Data Center**1.2017-4.2018**

Design and delivery of a Flask application for pharmacies to quickly check scanned prescription data and search scanned metadata.

Technologies: Python 3, Flask, Bootstrap, Sass, JSON Editor, SQLite, git

Consulting and Development, Partou Cooperative**10.2015-6.2020**

Consulting and strategy development as well as frontend development of an employee participation platform. In a team of 5 developers, I contributed to adapting the SPA application for the participation platform and bringing it to market readiness.

Technologies: TypeScript, Angular, SASS/SCSS, CSS, Python 3, Ansible, ZODB

EARLIER POSITIONS**Software Developer, InsideGuidance³****7.2011-1.2013**

Development of a browser-based single-page application with direct CouchDB integration.

Software Developer, Agile42⁴, Berlin**5.2009-6.2011**

Further development of the project management system "Agilo for Scrum" and design of its successor "Agilo 2". Setup and operation of server infrastructure.

Software Developer, Novamedia⁵, Berlin**10.2007-4.2009**

Development of synchronization software for mobile phones and smartphones on macOS.

Other Positions (Brief Overview)

Software development at DAI-Lab (TU Berlin), teaching assistant for operating systems and algorithms, early software projects.

EDUCATION**Diploma in Computer Science, TU Berlin****2001-2007**

Focus on operating systems and a diploma thesis on the parallel development of technical, legal, and social aspects of P2P and file-sharing technologies⁶. Graduated in 2007. Additional elective and supplementary subjects included psychology, philosophy, usability, and the construction of refactoring tools.

Abitur, Winterbach**1986 - 1999**

Completed the Abitur at the Freie Waldorfschule Engelberg in Baden-Württemberg.

VOLUNTEER WORK**Chaos Computer Club, Berlin****2002-present**

Long-term engagement in technical exchange and community projects.

³ <https://insideguidance.com/>

⁴ <http://agile42.com/>

⁵ <http://novamedia.de/>

⁶ Die Diplomarbeit ist unter <https://hacker.net/publications/> verfügbar

- Co-founder of a Berlin AI working group (since 2016); now a network of developers, researchers, and practitioners discussing AI technologies and their societal impact.
- Participation in operation and organization of the Berlin hackspace.

2020: ITO / TCN Foundation (Now: Linux Foundation for Public Health)

3.2020-5.2020

Mentor and coordinator of several teams developing COVID tracing apps; contributed to international standardization of the underlying privacy-preserving Bluetooth tracing technology.

Freitagsrunde, TU Berlin

2002-2007

Co-founded a student initiative to represent the interests of students of Faculty IV (Computer Science, Electrical Engineering, Technical Computer Science). Contribution in faculty committees as well as organization of programming and tooling courses for students.

HOBBIES

In my free time I sing in a choir, play the ancient Chinese board game Go, go paragliding, juggle, work with wood, and regularly go bouldering.