Sebastian Rücker

Head of Artificial Intelligence

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PROFILE

Head of Artificial Intelligence at Lang & Schwarz, a DORA-regulated market maker, where I built the AI function from zero: solo at first, then a team of three across AI and DevOps. The work spans an AI gateway in front of several model providers, internal agents, a company-wide assistant and the on-prem platform under all of it. Since September 2026 I also build an AI software factory of my own, where agents build software from a roadmap and a person steps in only where it matters. Before that I was Head of Engineering at Compredict.AI and Head of Applications and Machine Learning at OptioPay, with teams of up to 30 people, after fifteen years in finance and energy, most of it building the models. I write the code in Python, Go and TypeScript.

RESEARCH PROJECT

AI Software Factory, aisoftwarefactory.world 09/2026 – Present

- Extends my applied work at Lang & Schwarz into research: a self-hosted control plane for autonomous software delivery in regulated, security-conscious industries
- Published as source available in October 2026: aisoftwarefactory.world

SKILLS

- Standing up an AI function inside a regulated firm, from first hire to production
- AI gateway architecture for vendor-independent, cost-controlled access to model providers
- RAG pipelines and vector search over internal document estates
- Agent design on n8n, including compliance training agents for the EU AI Act
- AI software factories: agents build from a roadmap in sandboxes, behind gates for tests, review and policy
- AI governance under DORA and the EU AI Act, working with risk and compliance
- Predictive modelling on market data: price, volume and LLM-extracted sentiment

EXPERIENCE

Head of Artificial Intelligence, Lang & Schwarz, Remote, Düsseldorf, Germany 07/2025 – Present

- Built the AI function from zero at a DORA-regulated market maker, starting solo and then hiring and leading a team of three across AI and DevOps
- Architected a banking-compliant AI gateway on **LiteLLM** for vendor-independent, cost-optimised access to multiple model providers
- Built the application layer on top of it: internal agents on **n8n**, including an interactive EU AI Act training agent
- Delivered a company-wide assistant with self-hosted search on **Open WebUI**
- Built **RAG** with re-ranking and retrieval evaluation for that assistant
- Introduced AI-assisted development and test processes, built an AI software factory for the company and helped establish agentic coding workflows for the development teams
- Trained staff company-wide on AI and advise the board on technology and AI strategy
- Developed a time-series model predicting price shocks from combined price, volume and **LLM**-extracted social media sentiment
- Reached a 59% out-of-sample hit rate against a 39% naive baseline, 20 percentage points better, on real trading data net of spread and transaction costs
- Modernised company IT with an on-prem multi-cluster platform on **Harvester**, fully IaC and immutable
- Hosted AI workloads and core services including **Vault** and **Keycloak** on that platform

Head of Engineering, Compredict.AI, Remote, Germany 11/2022 – 07/2025

- Built the development team, led its frontend, backend, AI and DevOps managers, ran OKRs and squads
- Led complete platform development for AI virtual sensors
- Built the platform on **AWS** with **React**, **Python** and FastAPI
- Delivered the MVP on schedule
- Integrated deep learning models into **MLOps** pipelines: **CGNNs**, **WaveNets** and **Transformers**
- Ran model serving on **Kubernetes** with **Istio**
- Trained and deployed models with **TensorFlow**

Head of Applications and Machine Learning, Optiopay, Berlin, Germany 04/2021 – 11/2022

- Led cross-functional IT through the frontend, backend, AI and DevOps managers, with OKRs and squads
- Launched a loyalty rewards platform powered by open banking
- Built scalable microservices behind the platform
- Built the recommendation engine

Head of Development, cognitivestream, Frankfurt, Germany 04/2020 – 04/2021

- Built an AI-enhanced video coaching platform end to end
- Developed the front end in **React** and **React Native**
- Built the backend services on **Firebase**
- Integrated real-time posture feedback using **TensorFlow** and **PoseNet**

Lead AI Engineer, QiO Technologies, Potsdam, Germany 01/2020 – 03/2020

- Built a prescriptive deep learning model for steel furnace optimisation
- Deployed prediction microservices for energy and cooling efficiency

Team Lead Data Science, Advisori FTC, Frankfurt, Germany 05/2017 – 12/2019

- Led team growth and AI strategy, with utilisation and margin targets for the consulting team
- Delivered machine learning projects across NLP, time series, forecasting, logistics and cyber risk
- Presented the crime-prevention work at industry conferences in Berlin, Düsseldorf and Munich

Senior Consultant and Development Lead, EXXETA, Leipzig, Germany 11/2013 – 05/2017

- Led the simulation engine for energy portfolio optimisation
- Applied **VECM**, machine learning and high-performance computing to trading problems
- Optimised numerical code with **Cython** and **NumPy**

Consultant, EXXETA, Karlsruhe, Germany 06/2010 – 11/2013

- Guided risk and trading transformations at energy and financial clients
- Led quantitative hiring and training
- Built valuation models for derivatives and gas storage

Diploma Thesis, Equity Markets, Commerzbank, Frankfurt, Germany 10/2009 – 04/2010

- Built a hedging algorithm in **Python** with backtesting in **R**
- Worked with live tick data systems on the ETF desk

Intern, Equity Markets, Commerzbank, Frankfurt, Germany 02/2009 – 08/2009

- Built **VBA** and **Python** tooling for the desk
- Analysed trading data

MANAGEMENT AND LEADERSHIP

- Built an AI function from a single person to a team of three spanning AI and DevOps, including hiring, onboarding and performance
- Led engineering teams at three companies, setting technical roadmaps and architecture direction
- Advise the board of Lang & Schwarz on technology and AI strategy
- Mentored engineers and data scientists from graduate through to senior level
- Ran cross-functional delivery across engineering, data science, DevOps and product
- Led product provisionally at OptioPay and Compredict.AI and helped hire both heads of product
- Owned budget, procurement and vendor relations: evaluation, contract negotiation and partner development
- Led quantitative hiring and training programmes

- Worked with risk and compliance functions on AI governance under DORA and the EU AI Act
- Scrum (PSM II) and Kanban (KMP I) practitioner, running agile delivery in regulated settings

TECHNOLOGIES

Programming: Python, TypeScript, Node.js, Go, C#, JavaScript, SQL, R

AI and machine learning: LLM, RAG, LiteLLM, OpenAI, Anthropic, Hugging Face, LangChain, n8n, Open WebUI, Pinecone, Weaviate, FAISS, TensorFlow, PyTorch, Transformers, scikit-learn, MLOps

AI coding and model platforms: Claude Code, OpenCode, OpenClaw, Hermes Agent, MCP, Z.ai, Alibaba Cloud Model Studio, fal.ai, Replicate, Meshy

Cloud and DevOps: Kubernetes, Harvester, Vault, Keycloak, Docker, AWS, GCP, Istio, PostgreSQL

EDUCATION

Diploma in Business Administration, Finance, Statistics and Business IT, Ingolstadt School of Management, Ingolstadt, Germany 10/2004 – 04/2010

- Thesis: limit-order algorithm from a time-to-execution model, graded A.

Exchange Programme, Bank Management, Currency Markets and International Finance, Marquette University Business School, Milwaukee, USA 08/2007 – 05/2008

CERTIFICATIONS

- **Professional Scrum Master II (PSM II)**, Scrum.org, 2019
- **Professional Scrum Master I (PSM I)**, Scrum.org, 2013
- **Kanban Management Professional I (KMP I)**, Kanban University, 2019
- **Splunk Certified User**, Splunk
- **Machine Learning with TensorFlow on Google Cloud Platform**, Google, via Coursera, 2019
- **Deep Learning**, deeplearning.ai, via Coursera, 2017
- **Data Science Specialisation**, Johns Hopkins University, via Coursera
- **Architecting with Google Kubernetes Engine**, Google, via Coursera, 2019
- **Programming with Google Go**, University of California Irvine, via Coursera, 2021
- **MongoDB University**, MongoDB
- **Full-Stack Web Development**, Hong Kong University of Science and Technology, via Coursera
- **Big Data Essentials: HDFS, MapReduce and Spark RDD**, Yandex, via Coursera
- **Build a Modern Computer from First Principles (Nand to Tetris, Parts 1 and 2)**, Hebrew University of Jerusalem, via Coursera
- **AWS Technical Essentials**, Amazon Web Services, 2019
- **Microservices Architecture: The Complete Guide**, Udemy
- **Go: The Complete Developer's Guide**, Udemy
- **High Performance Python and Cython**, EuroPython training
- **Data Visualization and Communication with Tableau**, Duke University, via Coursera
- **Computational Investing I**, Georgia Institute of Technology, via Coursera
- **IBM Blockchain Foundation for Developers**, IBM, via Coursera

LANGUAGES

- **German**: native
- **English**: C2 listening and reading, C1 speaking and writing

SPEAKING ENGAGEMENTS

Can AI Prevent Crimes? A Live Show, Big Data AI Summit, Berlin 04/2019

Verbrechensvorhersage, Digitale Tage, Düsseldorf 05/2019

Crime Prevention Using AI, TDWI, Munich 06/2019

PERSONAL INTERESTS

- Algo trading