

# Philipp Petermeier

Software & ML Engineer | Full Stack Developer

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## About

I'm a Software Engineer and Full Stack Developer, fascinated by systems of all kinds: biological, social, technological. How they work, why they fail, how they solve information flow and how we might design better ones.

Since my B.Sc., I'm interested in data, models, and software engineering, ranging from data science and machine learning to full stack web development and cloud computing.

I work best with researchers—clarifying ideas, focusing on concrete use cases, and making results accessible.

## Experience

### Software Engineer (Founding Team)

Feb 2025 - Present

Backwelltech, Berlin, Germany

First software engineer in Berlin office, working directly with ML specialists to bring research into production. Built the engineering foundation from scratch and took on broad infrastructure and operations responsibilities as the company grew.

- Established development standards where none existed: version control workflows, deployment pipelines, tech stacks, and cloud infrastructure
- Own company-wide technical infrastructure: DNS, API key management, cloud accounts, and system administration
- Built automation tooling for cross-functional teams, enabling marketing and operations to self-serve workflows
- Evaluated and integrated AI-assisted development tools, becoming the team's technical resource for their adoption
- Sole owner of a product initiative from concept through deployment, maintenance, and iteration based on user feedback

Full Stack Development

DevOps

Cloud Services

Docker

Supabase

n8n

### Intern and Working Student

Feb 2022 - Mar 2024

Fraunhofer IEE, Kassel, Germany

Developed a scientific Python package to implement a reinforcement learning environment for electricity trading. Design, implementation and benchmarking of model paradigm fitting data structures and algorithms ensuring optimal runtime performance. Took over responsibilities in data modeling, ETL pipeline design, database deployment, and HPC cluster orchestration.

Data Science

Reinforcement Learning

Energy Systems

Python

HPC

## Education

B.SC. in Business Information Systems

Technische Hochschule Mittelhessen

Final Grade: 2.2 (78%) | 210 CP (7 Semesters)

Thesis: "A Deep Reinforcement Learning Environment for the Limit Orderbook Intraday Electricity Market: Development and efficient Implementation" | Grade: 1.2 (92%)

Award: Winner of Karl-Heinz Lust Innovation Award 2024 (Digital Economy / Industry 4.0 / AI)

Oct 2018 - Mar 2024

Data Science

Reinforcement Learning

Machine Learning

Data Engineering

Formal Modeling

## Technical Skills

### Python Ecosystem

Python (Advanced)

NumPy & Pandas

Notebooks (Jupyter, Marimo)

PyTorch & Keras

scikit-learn

Matplotlib, Seaborn & Plotly

### Other Technologies

JavaScript/TypeScript

PostgreSQL & MongoDB

Systems Architecture

Docker & Cloud Services

React & Next.js

Git & CI/CD

R & Julia

HPC & Distributed Computing

## Interests

- Data Science and Machine Learning
- Modeling of Processes and Data
- Graphs and Networks
- Human-AI Collaboration
- Game and Decision Theory

- Reinforcement Learning
- Evolutionary Algorithms
- Multi-Agent Systems
- AI Policy, Safety and Ethics
- Market and Mechanism Design

## Languages

German

Native

English

Fluent