Josh Kannemeyer

Software Developer | AI Engineer | Automation & Robotics

Essen, Germany
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Languages: English (native), German (conversational)

SUMMARY

Software engineer with an MSc in Automation & Robotics from TU Dortmund (1.5). Most recently I designed a multi-agent code review toolchain on the Claude Agent SDK, rolled out an ML solar-power forecaster in a live production environment, and integrated 8 inverters and 5 wallboxes into an energy management platform. I work with Claude Code daily and review every PR before merge. My strengths are system design, robotics control, and ML training pipelines. I have developed workflows for getting consistent, production-quality results from coding agents.

SKILLS

- **Primary:** Python, C++, MATLAB, ROS 2, Gazebo, Embedded Linux, Git, GitLab, GitHub, Linux
- **ML / Data:** scikit-learn, NumPy, Pandas, Reinforcement Learning, PyTorch
- **AI Tooling:** Claude Agent SDK, Anthropic SDK, MCP, Prompt Engineering, Multi-Agent Orchestration
- **Working Knowledge:** Django, FastAPI, PostgreSQL, Docker, CI/CD, React, TypeScript
- **Robotics / Hardware:** SLAM, NMPC, Modbus TCP/RTU, OCPP, SolidWorks, Autodesk Inventor

EXPERIENCE

Software Developer (IT Specialist) | *IT-Bauschmiede GmbH, Erkelenz (remote / hybrid)*
Feb 2025 – May 2026

- Designed and built an internal code review toolchain on the Claude Agent SDK as sole author, and used the multi-agent review bot myself on real merge requests in the production codebase
- Integrated 8 solar inverters and 5 EV wallboxes via Modbus TCP/RTU and OCPP into Impuls, IT-Bauschmiede's energy management platform, and rolled them out on customer field devices
- Ran an external penetration testing tool against the main codebase, discovered 17 findings myself, and remediated them across frontend, backend, and infrastructure
- Designed and rolled out an ML solar-power forecasting system with XGBoost into the Impuls production environment, with daily retraining and benchmarking against an external forecast API
- Coordinated the technical migration from a legacy codebase to a new CRM/ERP platform, including the Python 3.11 to 3.12 upgrade and CI pipeline consolidation
- Delivered a full-stack dynamic electricity-pricing module with Django/Python on the backend and React/TypeScript on the frontend

Master's Thesis Student | *Bertrandt, Essen (with TU Dortmund)*
Apr 2024 – Dec 2024 · jkannemeyer.com/projects/bob-imitation-learning

- Master's thesis: trained a neural network to imitate NMPC-based path following on mobile robots so it ran in real time on a Raspberry-Pi robot where the classical NMPC exceeded the CPU budget — a slight trajectory-accuracy tradeoff in exchange for deployability on embedded hardware
- Developed control and perception software in C++ and Python on ROS 2, integrating IMU and Lidar sensor data for autonomous navigation
- Set up a training-data pipeline and a custom path planner, then validated the learned policies on a Raspberry Pi robot in ROS 2 and Gazebo

Production Manager / Mechanical Draftsman | *Axent, Melbourne*
May 2021 – Jul 2022

- Introduced production scheduling with MS Project, which lifted throughput by 40%. Digitised the progress tracking process
- Designed enclosures and components in Autodesk Inventor, automating drawing routines with iLogic and cutting assembly time by 10%

PROJECTS

Personal Life OS | *Side project (ongoing)*
2025 – present

- Designed and run end-to-end an agent-based life-management system on Claude, used daily for planning, task management, and decision-making
- Built a custom MCP server for Apple Reminders; connected to Google Drive, Sheets, and other services via MCP integrations

Chronos Miniature Car | *TU Dortmund*
2024 · jkannemeyer.com/projects/chronos

- Trained control policies for high-speed path following on a car-like robot using reinforcement learning, optimising agent behaviour in simulation
- Transferred the trained policies to physical hardware using ROS 2, Gazebo, and Docker, achieving a successful sim-to-real transfer

Research GECCO '22 Publication | *Monash University*
Jul 2020 – Jul 2021 · youtube.com/watch?v=erT5WmfYfhE

- Used curriculum learning to improve legged-robot locomotion on rough terrain, running large-scale training on HPC clusters with Python and Linux
- The results became the basis for the GECCO '22 paper and were presented as a technical video

Autonomous Quadcopter | *Collaboration*
2025 · jkannemeyer.com/projects/drone-mpc

- Joined a collaborative NMPC-based trajectory-tracking project as sparring partner and hardware co-builder: hardware assembly, wiring, ROS 2 integration (PX4 + Raspberry Pi)

EDUCATION

MSc Automation & Robotics | *Technical University of Dortmund*
Oct 2022 – Mar 2025

Final grade: 1.5 („sehr gut"). Deutschlandstipendium scholarship (Vorwerk Elektrowerke, 2023–2024).

BE (Honours) Mechatronics + BSc Applied Mathematics | *Monash University, Melbourne*
Feb 2017 – Nov 2021

German equivalent: 1.8. Deans Honors List (2021).

PUBLICATION & TALK

- Assessing Evolutionary Terrain Generation Methods for Curriculum Reinforcement Learning. GECCO '22, 2022. Co-author.
- "Claude Code Best Practices": internal presentation for the IT-Bauschmiede engineering team on agent-assisted software development workflows, patterns, and pitfalls. Early 2026.