Nicholas Junge

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Work Experience

Senior MLOps Engineer, appliedAI Institute for Europe gGmbH (Munich, DE) **Nov 2022 – present**

I developed multiple open-source libraries (>4k installs/mo) to help ML practitioners with their projects, like lakefs-spec for data versioning, and nnbench for model evaluation. Also, together with my colleagues I scored second place in the "KI Kommune 2024"-Hackathon in Heilbronn, working on a large-scale satellite image segmentation problem.

Tools: *Python, C++, Docker, Kubernetes, git, MLflow, BigQuery, GitHub Actions.*

Data Engineer / Analyst, Junge Die Bäckerei GmbH (Lübeck, DE-remote) **Jul 2021 – Apr 2026**

Part-time in the family business, I advise a data science team on building ML pipelines for demand forecasting, and maintain multiple existing ETL pipelines on review aggregation, syncing opening hours, and data quality assurance.

Tools: *Python, Windows Server, MSSQL, Prefect, scikit-learn, duckdb.*

Working Student ML Engineer, ZenML GmbH (Munich, DE) **Jun 2020 – Mar 2021**

I contributed to the launch of ZenML, collecting >700 GitHub stars in week 1, by writing a test suite with 80% coverage to improve reliability and robustness of the initial product, as well as multiple ML pipeline components like a train-test-split and a model performance evaluation step.
Earlier, I ran distributed ML pipelines training neural networks on terabytes of data for predictive maintenance of buses, producing a working proof of concept that we pitched to MVG, Munich's public transport services.

Tools: *Python, Apache Beam, TensorFlow, TFX, BigQuery, Google Cloud Vertex AI.*

Working Student Modeling & Simulation, Siemens (Munich, DE) **Aug 2017 – Sep 2019**

I built a full-stack ML app for real-time training and evaluation of ML models for electrical current loss prediction in transformers, scoring >95% accuracy. In another project, I implemented an ordinary differential equation (ODE) solver in C++17 to simulate crack propagation in solids, and integrated it with the Siemens NX CAD system.

Tools: *Python, C++17, React.js, Tensorflow, Pandas, Websockets, Siemens NX.*

Selected Projects and Open Source Contributions

- I maintain Google Benchmark's Python bindings, and received the Google Open Source Peer Bonus award in 2023.
- I contributed NumPy functionality, improved logging, and better linear systems solving and root finding to JAX.
- Also, I am a frequent contributor to nanobind, and the author of nanobind-bazel, a Bazel ruleset that makes it easy to create Python-C++ bindings extensions with Bazel.

Education

M.Sc. Mathematics | TUM (Munich, DE) | GPA (US/DE): 3.5/1.5 **Oct 2017 – Jun 2020**

Study topics: Mathematical Modelling, Statistics & Machine Learning, Time Series Analysis, Optimization.
Thesis: Time Series- and Network-based Human Behavioral Analysis (GPA US/DE: 4.0/1.0)

B.Sc. Physics | Bielefeld University (Bielefeld, DE) | GPA (US/DE): 3.2/1.8 **Oct 2013 – Sep 2017**

Study topics: Theoretical physics, numerical analysis, mathematical modelling.
Exchange semester (ERASMUS) at Bergen University, Norway, in the Autumn Term 2015 (08-12/2015).

Skills and Strengths

- **Languages:** Python, C++17, JavaScript (programming) | German, English, Norwegian, Danish, Spanish (spoken).
- **Devtools:** Compiler toolchains, git, Docker, k8s, Bazel, Google Cloud, AWS (selected services), GitHub.
- **Engineering strengths:** Benchmarking, testing, performance tuning, profiling, continuous integration, Python->C++ bindings, build systems.
- **Study background:** Numerics, optimization, statistics, machine learning, linear algebra.