

Work Experience

Data Analyst, Junge Die Bäckerei GmbH since Jul 2021

- I currently develop and maintain an in-house Python ETL data pipeline library using SQL, numpy and pandas.
- Quantitatively analyzed customer behavior and seasonal trends in sales with data pipelines, improving the attractiveness of the customer loyalty program and the development of better healthy nutrition advice for customers.

Working Student ML Engineer, ZenML GmbH Jun 2020 - Mar 2021

- Contributed to the launch of ZenML, collecting >700 GitHub stars in the first week, by writing a test suite with 80% code coverage, improving software reliability and robustness.
- Ran ML pipelines to train neural networks on terabytes of sensor data to predict maintenance needs for buses, laying the groundwork for a proof of concept that we pitched to our client, the Munich public transport services.

Research Student, Siemens Corporate Technology 3 Projects, 14 months between 2017 and 2019

- Implemented mathematical crack propagation models in C++ for my supervisor's structural mechanics simulation.
- Built a full-stack app in React.js (frontend) and Python (backend) for real-time training and evaluating ML models with Tensorflow and scikit-learn, successfully presented to the client on demo data at project completion.
- Wrote a technical guide on GPU profiling for Intel-based Siemens PLCs, and set up an OpenGL demo for it.
- Simulated large-scale, distributed communication in a digital factory with a demo system of four RaspberryPi's.

Education

Technical University of Munich Munich, Germany
M.Sc. Mathematics, GPA: 1.5/1.0 (graduated with distinction) Oct 2017 - Sep 2020

Topics of study: Mathematical Modelling, Statistics & Machine Learning, Time Series Analysis, Optimization.

Thesis: Time Series- and Network-based Human Behavioral Analysis (grade: 1.0, best possible)

Bielefeld University Bielefeld, Germany
B.Sc. Physics, GPA: 1.9/1.0 Oct 2013 - Sep 2017

Topics of study: Astrophysics, Quantum Mechanics, Numerical Analysis, Linear Algebra, Differential Equations.

Exchange semester (ERASMUS) at Bergen University (UiB), Norway, Autumn Semester 2015.

Selected Projects + Open Source Contributions

Case Studies: Nonlinear Optimization, with risklab GmbH Summer Semester 2019

- Used mathematical optimization in Python to find optimal investment portfolios from ≥ 20 assets.
- Achieved a 6x speedup over the commercial Gurobi, maintaining high result quality, with numpy, scipy, cvxopt.

pybm (<https://github.com/nicholasjng/pybm>) since June 2021

- A lightweight, cross-platform, customizable command line tool for Python performance benchmarking.

Google Benchmark / JAX

- Contributed continuous integration and tests for Python wheel builds to Google Benchmark.
- Added missing numpy functionality, improved linear systems solving and root finding in Google's JAX project.

Skills and Strengths

- 4+ years of experience in Python and C++.
- The Python Data Science Stack (numpy, scipy, pandas, scikit-learn, matplotlib).
- Web development with Typescript, React, Next.js.
- Structured problem solving, learning new concepts quickly.
- Collaborative software development and delivery with git, Docker, command line tools.
- ML frameworks (Tensorflow, Pytorch, JAX) and tooling (MLOps Pipelines, deployments, inference).
- Languages: German, English (native), Danish, Norwegian (professional), Spanish (intermediate).