



Niklas Baier

ML / AI Engineer

Interdisciplinary professional driven to make a meaningful impact in integrous teams.

Experience

● (Associate) Machine Learning Engineer

ProSiebenSat.1 Tech & Services GmbH

01/2024 - present

Development & Production scaling of the Joyn AI Assistant

(langgraph-based RAG agent recommending VOD & live content and answering format-related queries for millions of end users)

- Established a technical project basis following best practices, incl. pre-commit hooks, semantic versioning, exhaustive testing suite, sophisticated CI/CD pipeline, review apps & more
- Set up Datadog integration for health, error and technical metrics monitoring & alerting as well as LLM observability
- Designed & executed a series of concurrency tests to stress-test & adapt the infrastructure for the go-live
- Built a cli tool for easy interaction with and testing of the agent deployed to different environments

Tech Lead for company-wide GenAI web app

- Designed a zero-downtime process for model deprecation affecting 800+ productively used Assistants (custom GPTs)
- Led strategic direction as interim Product Owner, spearheading vision & roadmap while continuing development contributions
- Engineered a suite of automated smoke & online integration tests to ensure availability of model offering across cloud providers (AWS Bedrock, Azure AI Foundry, Google Vertex AI)
- Conceptualized & implemented a text-to-image feature using OpenAI's DALL-E 3 diffusion model, enabling more than 100k generations

Contributions to department-wide AI Services Platform

- Configured & deployed [LibreChat](#) on the AWS Cloud using IaC with Terraform, *AWS EC2, ALB, Route53*, and *Azure EntraID SSO* integration as a scalable GenAI platform for text & image model inferencing
- Built a retrieval evaluation pipeline using *MLflow* & applied contextual embedding strategy to increase retrieval performance significantly across document- & chunk-level metrics
- Authored a *Python* package to drive reproducible LLMOps prompt engineering experiments via *MLflow*, for stand-alone system prompts and end-to-end evaluation of RAG pipelines

● Data Science Intern

ProSiebenSat.1 Tech & Services GmbH

07/2023 - 12/2023

- Spearheaded the development of an interactive *streamlit* web app for machine learning model explainability via *shap*, and ongoing productive model performance monitoring
- Engineered and tested a new competition score feature end-to-end via *Metaflow*, *MLflow* and the AWS Cloud for linear TV market share forecasting
- Strengthened *Python* and *SQL* proficiency through exploratory data & detailed error analysis, as well as regular code reviews
- Leveraged the OpenAI API and advanced prompt engineering techniques to augment the project's training dataset with movie franchises

Contact

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 github.com/niklasbaier/

Key Skills

Software Development

- *Python* development (*fastAPI*, *SQLAlchemy*, *numpy / pandas*, unit & integration testing, *BDD / DDD*)
- Vertical slice feature refinement & system / component design
- DevOps with *Docker*, *Datadog*, *GitLab* CI/CD, *Bash* scripts
- Rapid prototyping of UIs & web apps with *streamlit*
- AWS, GCP & IaC with *Terraform*

Machine Learning & GenAI

- Prompt engineering & RAG (*langchain*, *langgraph*)
- Familiarity with *Metaflow* & Databricks-managed *MLflow* for traditional model training & evaluation

Product Management

- Requirements engineering
- Stakeholder management
- Agile methodologies, incl. SCRUM

Soft Skills

- Effective cooperation & strong communication
- Presentation skills

Languages

- German - native
- English - C2 (DAAD)

Side Projects

[Instant Repo](#)

Template repository for rapid creation of new projects from a well-established starting base, using *poetry*, *pre-commit hooks*, a skeleton CI/CD & more

[Securities Master Database](#)

Financial data repository deployed on a local Raspberry Pi server, storing and automatically updating data for over 10k financial instruments from the Yahoo Finance & Alpaca Trade APIs

About Me

Interests

- Traditional & Generative AI
- PC Hardware & Mechanical Keyboards
- Robotics & Virtual Reality

Hobbies

- Strength & Endurance Training
- Electric & Acoustic Guitar
- Videogames
- Tabletop Roleplaying (D&D)
- Creative (Video) Projects

- **Quantitative Research Thesis Student**
Allianz Global Investors 07/2022 - 01/2023
 - Conducted Master Thesis (graded 1.0) under supervision of the Systematic Equity team, training modern machine & deep learning models with *Python* on historical financial & macroeconomic data to forecast corporate earnings
 - Leveraged these forecasts to simulate an equity investment strategy within the Azure Cloud (*Data Lake, Databricks*)
- **IT Solution Advisory Working Student**
McKinsey & Company 05/2022 - 06/2023
 - Demonstrated strong problem-solving skills and effective communication while providing time-critical hardware and software support in an international first-level IT user support role
- **Quantitative Research Intern**
Quantumrock 01/2022 - 04/2022
 - Utilized *Python* to develop and backtest a quantitative investment strategy focused on capitalizing on mean reversion effects in multi-factor momentum investing, in close collaboration with the CIO and the Heads of Algorithmic Trading & AI Systems
 - Summarized the findings in an [academic research paper](#) using *LaTeX*
- **Other Working Student & Intern Positions**
BayernLB (Project & Business Management) 11/2018 - 08/2021
KPMG (Data & Trend Analytics Consulting) 03/2018 - 05/2018
Munich Network (Innovation Sourcing) 10/2016 - 09/2017

Education

- **M.Sc. Management & Technology**
Technical University of Munich 10/2019 - 09/2023
 - graduated with final grade of 1.4
 - Master Thesis on *Machine Learning for Earnings Forecasting*, graded 1.0
 - Major in Finance & Computer Science
- **B.Sc. Management & Technology**
Technical University of Munich 10/2014 - 09/2019
 - graduated with final grade of 2.0
 - Bachelor Thesis on the *Impact of Meaningful Work on Stock Market Performance*, graded 1.3 & [published](#) in *Review of Business Studies* journal
 - Major in Business Administration & Computer Science
- **German Abitur**
Municipal High School Werner-von-Siemens 08/2006 - 07/2014
 - graduated as Valedictorian with final grade of 1.0
- **International Studies**
Bocconi University (Summer School) 06/2021 - 07/2021
HEC Paris (Summer School) 06/2020 - 07/2020
Tohoku University (Exchange Semester) 10/2017 - 03/2018