MAXIMILLIAN MANTEI

ML/AI Engineer, Data Scientist, Economist

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max-mantei maxmantei Maximillian_Mantei

EXPERIENCE

Freelancer

May 2021 – present

welded.io UG

March 2025 – present Mettmann, Deutschland (remote)

- Owned the design and architecture of a scalable data platform for processing high-resolution IIoT real-time data
- Implemented an AI-based computer vision pipeline end to end for visual monitoring of industrial processes

agital.online GmbH

August 2023 – July 2026 Lüneburg, Deutschland (remote)

- Designed and implemented a large-scale, continuous monitoring system for heating oil prices
- Developed and deployed an interactive dashboard for data-driven market monitoring
- Built a data lake enabling high-performance analysis of over 2 billion price data points

Nahnetz GmbH

April 2023 – March 2025 Hamburg, Deutschland (remote)

- Responsible for the design, modeling, and evaluation of market and preference analyses (including conjoint analyses), leveraging Bayesian models to deliver robust market potential estimates
- Developed simulation-based decision-making models for assessing and optimizing the economic viability of battery storage systems, leveraging probabilistic methods (Gaussian process regression)

Raiffeisen Networld GmbH

February 2022 – March 2023 Köln, Deutschland (remote)

- Developed predictive vision models to estimate soil organic carbon content by integrating satellite imagery and in-situ data
- Developed probabilistic demand forecasts to optimize data-driven B2B customer campaigns, incorporating uncertainty quantification to support more robust decision-making

Causiq AB

May 2021 – January 2022 Stockholm, Schweden (remote)

- Owned the design and implementation of a tailored Bayesian media mix model for measuring the causal impact of marketing channels
- Developed an attribution model based on Shapley values for fairly attributing marketing effects

Research Assistant and Tutor

October 2013 – December 2017

- Contributed to DFG-funded research projects in behavioral economics and empirical economic research, including designing and evaluating randomized controlled trials (RCTs); built and analyzed complex panel datasets using econometric models; taught statistics and programming (R) as a lecturer and tutor.

PROFILE

Bridges machine learning, agentic AI, data engineering, and MLOps into scalable end-to-end solutions. Combines rigorous statistical foundations and causal inference with economic acumen to develop robust, value-driven data products and sustainably enable data-driven decision-making.

TOOLS

ML Engineering

PyTorch polars numpy scikit-learn tidyverse

Agentic AI

LangChain LangGraph fastmcp Pydantic AI

Python

asyncio pytest uv ruff mypy FastAPI SQLAlchemy

MLOps & LLMOps

MLFlow Docker DVC git GitHub AWS Linux HuggingFace

Data Engineering

Airflow prefect duckdb InfluxDB Postgres MQTT Kafka

Data Frontend

Streamlit plotly Grafana NiceGUI Vega-Altair shiny ggplot2

Statistics & Econometrics

Bayesian Optim. Kausalinferenz Gaussian Processes Timeseries

EDUCATION

PhD Candidate in Economics

Universität Hamburg, DFG Research Training Group: Internationalization of the Law and its Economic Analysis
DFG full scholarship

2016 – 2021 Hamburg, Deutschland

- Bayesian semiparametric hierarchical GLM estimation of foreign direct investment flows and stocks based on dyadic panel data
- Developed causal models to account for endogenous sample selection and non-random missing data in order to identify heterogeneous contract effects

MSc Politics, Economics, and Philosophy

Universität Hamburg

2013 – 2016 Hamburg, Deutschland

- Hierarchical Bayesian analysis to model the behavioral-economic effects of individual bidding behavior in Dutch auctions (reverse auctions)

Note: 1,35

Erasmus Exchange

Aarhus Universitet

2011 – 2012 Aarhus, Dänemark

B.A. in Political Science and Economics

Universität Bremen

2009 – 2013 Bremen, Deutschland

- Quantifying strategic voting behavior in European interwar democracies through regression analyses

Note: 1,66

Abitur (German university entrance qualification)

Freie Evangelische Bekenntnisschule Bremen

2006 – 2008 Bremen, Deutschland

Note: 1,3

INTERNSHIPS & CIVILIAN SERVICE

Internship

HKM Gesellschaft für Marketingforschung & Beratung mbH

March 2013 – September 2013 Hamburg, Deutschland

- Data analysis with a focus on the European automotive market

Internship

Behörde für Wirtschaft und Arbeit (EFRE-Referat)

February 2011 – April 2011 Hamburg, Deutschland

- Quantifying and evaluating public relations activities

Civilian Service

Senatorin für Bildung und Wissenschaft

August 2008 – May 2009 Bremen, Deutschland

- Supported primary school children with integration needs at a special-needs school

CERTIFICATIONS

IBM RAG and Agentic AI
IBM @ Coursera

Machine Learning Engineering for Production (MLOps)
DeepLearning.AI & Google @ Coursera

Data Engineering
DeepLearning.AI & AWS @ Coursera

LANGUAGES

German (native language) ●●●●●

English ●●●●○

Spanish ●●○○○

ENGAGEMENT

Stan Governing Body
Member of the Stan Governing Body (SGB), 2021
`https://mc-stan.org/about/`

Stan Community Leader
Volunteer support for Stan users with statistical and technical questions

CONFERENCES

Academic (with presentation)
ETSG, Sep 2019, Bern, CH
Positive/Negative Listing and Trade Openness
AFED, Nov 2017, Aix-Marseille, FR
The Law and Economics of BITs
SIDE, Dec 2017, Rom, IT
The Law and Economics of BITs

Tech & Methods (with tutorials)
StanCon, Aug 2019, Cambridge, UK
Bayesian ODEs & Bayesian GLMs
StanCon, Aug 2018, Helsinki, FI
Bayesian Hierarchical Models & Bayesian Model Selection

HOBBIES & OTHER

Recreational Programming
Microcontrollers with sensors and motors in C/C++ and Rust.
AI agents that handle everyday tasks.

Music
Member of a group of over 20 musicians; held leadership responsibility at times.

Politics, Society, and Culture
Interest in global political affairs, cultural and historical events