

Valentin Hausladen

Physics M.Sc. · Machine Learning & Time Series Forecasting for Energy Systems

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PROFILE

Physics master's student with 3+ years of industry experience. At E.ON Short-Term Trading I take ML forecasts for renewable power from raw data to production: pipelines, models and dashboards used daily by traders. Master's research at the German Aerospace Center (DLR) on forecasting nonlinear dynamical systems.

EXPERIENCE

Working Student, Short-Term Trading | E.ON, Munich 2025 – present

- Develop ML models for wind and solar power forecasting (gradient boosting, neural networks, regularized regression, Optuna) that combine multiple numerical weather prediction sources, benchmarked against operational forecasts.
- Built automated data pipelines on Azure that ingest forecasts and actuals at 15-minute resolution, including backfilling, data quality checks and failure alerting.
- Designed a partitioned Parquet data lake with automated accuracy metrics, accessible from Databricks and Python.
- Develop and operate dashboards (Plotly Dash, Streamlit) used daily by traders to monitor and compare forecasts; containerized with Docker and deployed via Azure DevOps CI/CD on Kubernetes.
- Resolved production incidents through log-based root-cause analysis, e.g. cutting a dashboard's memory use by 65 %.

Working Student, Innovation Lab New Materials | Infineon Technologies AG, Regensburg 11/2022 – 02/2025

- Built an ML model classifying materials by their FTIR spectra for reverse engineering.
- Co-designed experimental setups for novel semiconductor materials, analyzed the data and presented results to technical experts.

EDUCATION

M.Sc. Physics, AI in Physics certificate | LMU Munich, Germany 2025 – 2027 (expected)

- Thesis at DLR: *Forecasting of nonlinear dynamical and complex systems using reservoir computing*.
- Developed a parameter-aware reservoir computing model that forecasts chaotic systems in parameter regimes not seen during training.
- AI Lab project: time series forecasting on quantum computers using quantum reservoir computing.

B.Sc. Physics, grade 1.1 | Universität Regensburg, Germany 2021 – 2025

- Thesis: *Preconditioning for Wilson-clover fermions using gauge-equivariant deep neural networks* (ML acceleration of QCD solvers).

Abitur, grade 1.1 | Veit-Höser-Gymnasium, Bogen 2015 – 2021

- DPG Prize (physics) and DMV Prize (mathematics) for the top graduate in these subjects.

SKILLS & LANGUAGES

Programming: Python, SQL, Git, $\text{\LaTeX}$

Machine learning: PyTorch, TensorFlow, scikit-learn, LightGBM, Optuna, pandas, Polars, xarray

Cloud & MLOps: Azure (ML, Blob Storage, DevOps CI/CD, Log Analytics), Databricks, Docker, Kubernetes, SLURM

Methods: Time series forecasting, regression, classification, feature engineering, deep learning, MLOps

Languages: German (native) · English (C1, TOEFL) · French (C1) · Portuguese (A2, learning)

Interests: Member of the German Physical Society (DPG), sports