Thomas Falconer

Ph.D. Candidate | Data Scientist | Software Engineer

Links

LinkedIn (thomas-falconer)
Website (thomasfalconer)
GitHub (tdfalc)

Skills

Python, golang, Julia, R, SQL, AWS, Git, Jupyter, HTML, CSS
Machine learning
Optimization
Visualisation
Software Engineering
Model fitting

Awards

Chemical Engineering Departmental Prize, Heriot-Watt Dean Award, Chevron Prize for Best Student in a Team Environment

Communication

Academic presentations in several institutions and countries incl. INFORMS, NeurIPS and ACM.

Publications

2 first author pre-prints (under review), 1 accepted to Journal of Machine Learning Research (minor revisions), 1 first authout publication in IEEE Transactions on Power Systems.

Certifications

Qualified European Power Exchange Trader,
2x Certified CRM Consultant

Voluntary Work

Danish Data Science Academy mentor for aspiring data scientists, software engineers, etc.

I assist in the running of a sustainability-driven co-working space, which involves: managing a volunteer team, partnership management, etc.

Experience

06/22–Now **Freelance** London, UK (Remote)
Software Engineer, Data Scientist, Business Consultant
Providing support with tasks related to software engineering, data analytics and modelling.

12/20–05/22 **Arenko** London, UK
Data Scientist
Developed and productionised probabilistic time-series models for forecasting electricity market prices. Established MLOps pipelines, including feature store, model versioning (mlflow), model serving with production-level Python code (FastAPI). Helped develop data engineering, orchestration (Prefect) and digestion (RDBMS) pipelines. Assisted the development of stochastic market optimization to increasing automated trading revenues. Created interactive visualisations of market opportunities (matplotlib, plotly, Streamlit, Dash).

10/20–12/20 **University College London** London, UK
Teaching Assistant (Energy and Artificial Intelligence Lab)
Assisted delivery of postgraduate modules in probability, statistics, programming for data analysis, optimization and machine learning.

05/20–10/20 **Invenia Labs** Cambridge, UK
Machine Learning Researcher (Intern)
Applied (geometric) deep learning to augment traditional optimization methods for power grid operation.

Education

2022–Now **Ph.D.** *Electrical Engineering* Technical University of Denmark
Focus areas: *Mechanism Design, Data Markets, Machine Learning, Optimization and Game Theory, all within a power systems context*.
Working Title: *AI for Electricity Market Design*

2019–2020 **M.Sc.** *Data Science, Power Systems, (Distinction, Top 5% in Year)* UCL
Focus areas: *Statistical Data Analysis, Supervised Learning, Unsupervised Learning, Advanced Energy System Modelling, Spatial Analysis of Energy Data, Built Environment and Transport Analytics*.
Thesis: *Reducing the computational cost of AC Optimal Power Flow with Geometric Deep Learning*

2014–2019 **B.Eng.** *Chemical Engineering, (First Class, Top in Year)* Heriot-Watt Univeristy
Focus areas: *Chemical Reactivity, Chemical Kinetics, Multi-Phase Thermodynamics, Fluid Mechanics, Separation Processes, Chemistry of Materials, Process Control and Optimization*.
Thesis: *Biofuel synthesis from Lignocellulosic Biomass using Fermentation and Borrowed Hydrogen Chemistry*

2016–2017 **B.Sc.** *Operations Research (Year Abroad)* University of Amsterdam
Focus areas: *Probability Theory, Statistics, Calculus, Linear Algebra, Econometrics, Operations Research, Microeconomics, Macroeconomics, Programming for Numerical Analysis.*