

Theo Wolf

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EDUCATION

DPhil Autonomous Intelligent Machines and Systems Oct 2024 — Sep 2028
University of Oxford *Oxford, UK*

- Interests in deep learning architectures for system identification. Specifically, using SinDy in embedding spaces. Interested more broadly in **dynamical systems** and **control** for **climate** applications.
- Supervisors have not been confirmed yet, Prof. Yarin Gal as a potential supervisor.

M.Sc Machine Learning, Distinction Sep 2021 — Sep 2022
University College London *London, UK*

- Focus on machine learning theory; including Approximate and Variational Inference, Reinforcement Learning, Bayesian Deep Learning, AI for Sustainable Development, Statistical NLP, Probabilistic and Unsupervised learning.
- Thesis on applying Reinforcement Learning to climate models. Supervised by **John Shawe-Taylor** and **Maria Pérez Ortiz**. Achieved grade of 85% and subsequently published at a **NeurIPS 2023 workshop**.

B.Sc Astrophysics and Physical Chemistry, First Class Sep 2018 — Jun 2021
University College London *London, UK*

- Emphasis on mathematical modelling, chaotic systems, atmospheric science, statistics, radiation, and **quantum physics**.
- Final project was a literature review on the measurement of the **speed of the expansion of the universe**, a highly active field of research. Supervised by **Stephen Feeney**.

WORK EXPERIENCE

Machine Learning Engineer Oct 2022 — Sep 2024
Carbon Re *London, UK*

- Responsible for **developing** and **maintaining** ML models (PINNs, Kalman Filters) for improved control of cement plants.
- **Lead a range of projects**, such as a grant funded project for **Department of Energy Security and Net Zero**.
- **Created and led** the internal bi-monthly **journal club** within the ML team. A practice the team has kept to this day.

Data Science Intern Jun 2021 — Sep 2021
SuccessData *London, UK*

- Development of a **news article classifier** for ENGIE's credit risk analysis team at an ML consultancy Startup.
- Combined the Reuters API with NLP libraries (FinBERT, spaCy, flair) in a live pipeline for sentiment analysis.
- **97% test accuracy** on classifying whether a company is mentioned positively/negatively in the news.

PUBLICATIONS

- Wolf, Theodore et al. "Can Reinforcement Learning support policy makers? A preliminary study with Integrated Assessment Models." *NeurIPS 2023 Workshop on Tackling Climate Change with Machine Learning*. [Link](#)

HIGHLIGHTED PROJECTS

PID control dashboard, Live demo of PID control to gain intuition for parameters. ([Streamlit](#)) Jun 2024

KANs simply explained, Explaining KANs and comparing to symbolic regression. ([TowardsDataScience](#)) May 2024

Gaussian Process from Scratch, GPs only implemented with NumPy. ([TowardsDataScience](#)) Jan 2024

PINNs in PyTorch, Implementation of PINNs in Pytorch and applied to a simple problem. ([Medium](#)) Apr 2023

SKILLS

- **Technologies**: Python, MatLab, HTML/CSS, Git, Docker, LaTeX, Sklearn, PyTorch, TensorFlow, JAX, WandB.
- **Communication**: I've written many technical blogs and invited to various talks (more on [my website](#)).
- **Languages**: English (Fluent), French (Fluent), German (Advanced), Spanish (basic).