Dr. Matt Amos

Environmental data scientist

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Experienced research scientist passionate about solving important interdisciplinary challenges. Quick learner with a strong background in environmental and climate science, statistics and machine learning, and physics. Motivated by tricky problems and working with others for the good of people.

Computing and Coding

Skilful and experienced with a typical Python and ML development tech stack. Evidence of experience can be seen on my github.

- **Code:** VSCode, git, conda, UNIX, pytest
- **ML:** tensorflow, JAX, GPflow, sklearn
- **Big data:** xarray, dask, pandas/polars, geopandas, SQL
- **Cloud:** GCP, AWS
- **Viz:** Plotly, matplotlib, dash, seaborn, blender, Adobe Illustrator
- **Publishing:** Github, binder, latex,
- **Distributed computing:** SLURM, LSF on large computing clusters

Statistics and Machine Learning

Accomplished statistician producing innovative machine learning solutions.
Particularly knowledgeable in:

- Bayesian neural networks (deep learning)
- Hierarchical and sparse Gaussian processes
- Model ensembling
- Hybrid modelling
- Bayesian inference
- Geospatial methods
- Time series analysis
- Optimal transport
- Time-frequency analysis
- Generative adversarial networks

Employment and Education

Senior Research Associate in Maths and Stats at Lancaster University (2021- Present)

- Leading independent and collaborative research to build state-of-the-art models for applications in climate and air quality

PhD in Atmospheric Data Science

- Built custom data science tools for climate and atmospheric sciences

MPhys in Physics (First class)

- Research into oceanic rogue waves using time-frequency analysis

Notable Outputs

- Published machine learning research in NeurIPS on both Gaussian processes and neural networks
- Maintain an open-source Python package for Bayesian model ensembling
- Attracted $10000 funding from Google to explore Bayesian neural networks and GANs
- Produced innovative applied data science research in Environmental Data Science, Atmospheric Chemistry and Physics, Ecology and Evolution
- Contributing author on the World Meteorological Organisation's Ozone Assessment report
- Team leader on a CMIP6 (climate model data) hackathon