Ted Mackereth, Ph.D.

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PhD in Astrophysics with focus on statistics, machine learning and high performance computational methods. Natural problem solver and generalist. 3 years experience in post-doctoral research and senior data science, thrives in fast-paced, deadline-driven environments, seeking new challenges and growth in data and industry.

Data Scientist

2022 - Present

Just Group Plc, Angel Lane, London, UK

- Sole Data Scientist in Defined Benefit Pensions business and lead developer (full stack) and product owner on overhauled operational data platform using **Azure SQL, Python FastAPI, React/Next.js and Databricks**.
- Strategic lead on AI in Defined Benefit Business: helped establish a group Machine Learning and AI centre of excellence.

Senior Data Scientist

2022 -2022

OceanMind, Harwell Campus, Oxfordshire, UK

- R&D and consultancy at a maritime enforcement and conservation non-profit.
- Supporting development and maintenance of a cutting-edge ML engine that applies **speech recognition tech (C++, C#, Azure)** to detect and characterise fishing activities from vessel **satellite imaging and telemetry** to prevent illegal, unregulated and unreported fishing and provide intelligence on other maritime activities.

Postdoctoral Fellowships (Astrophysics)

2019 - 2022

United Kingdom & Canada

- Independent researcher in galactic astrophysics, funded by prestigious fellowships overseeing a broad range of solo and collaborative projects using **hydrodynamical simulations of the universe** and **multi-dimensional observational data** sets, applying **Bayesian modelling** and **machine learning** with **PyTorch**, **Pyro** and **scikit-learn**

PROJECTS

Artificial Neural Networks for age-dating 400,000 stars

- Developed pipelines and Bayesian CNN models for fast and reliable prediction of ages in 400,000 stars from high-dimensional spectroscopic data

Fast, scalable compute and data platform for pensions data

- Developed a full-stack data platform for the management of and computation and analytics on defined benefit pensions data, using Azure Kubernetes, FastAPI and Next.js

Inferring and visualising fishing activity from satellite data

- Supported the late stage development of an algorithm employing a viterbi decoder to parse fishing vessel satellite telemetry (AIS), to infer fishing activity for global fishing fleets.

EDUCATION

PhD, Astrophysics

2015 - 2019

Astrophysics Research Institute, Liverpool John Moores University, UK

- Developed novel algorithm for determining orbits of stars in the Milky Way

MPhys, Astrophysics

2011 - 2015

University of Liverpool, UK

- Graduated 1st Class w/ Honours. Courses included statistics, computational physics, dynamics

LANGUAGES

FLUENT

python SQL JS/TypeScript

COMPETENT

R Julia C/C++ MATLAB

TOOLS

Numpy Scipy scikit-learn PyTorch Pyro Keras PyMC TensorFlow BigQuery plotly/Dash Matplotlib Figma React/Next.js GDAL/QGIS Azure GCP Terraform

SKILLS

Statistics AI/ML UI/UX Data Visualisation Geospatial Data Time-series analysis Communication Mentoring Leadership Critical Thinking Problem Solving Project Management

OPEN SOURCE CONTRIBUTION

galpy
Galactic dynamics package in Python with C/C++ extensions

apogee
Python toolkits for astrophysical data from SDSS/APOGEE

AWARDS & HONOURS

Thesis Prize
2019 LJMU Faculty of Engineering Thesis Prize

Banting Postdoctoral Fellowship
One of Canada's most competitive postdoctoral awards

James Webb Space Telescope
Lead a proposal which was awarded some of the first observing time

INTERESTS

Design Architecture Hiking Open Science/Data Art