# Dr Thomas **Dickson**

DATA SCIENTIST · SOFTWARE ENGINEER · QUANTITATIVE RESEARCHER

(+44) 07572293486  |  tajdickson@protonmail.com  |  tajd.github.io  |  tajd

## Summary

I provide data driven software solutions to challenging technical problems. I currently support Team GB, via the English Institute of Sport, by developing hardware and software solutions that improve athlete success. I have solved data science problems in government, academia and for charities. I undertake research applying machine learning techniques to real problems. I write about the things I find interesting on my website, `tajd.github.io`.

## Education

**University of Southampton**                                  *Boldrewood Innovation Campus, Southampton*

PHD. IN ENGINEERING                                                                     *2016 - 2020*

MENG IN SHIP SCIENCE/YACHT AND SMALL CRAFT                                               *2011 - 2016*

## Experience

**University of Southampton**                                  *Boldrewood Innovation Campus, Southampton*

ENGLISH INSTITUTE OF SPORT RESEARCH FELLOW                                   *Dec 2019 - Present*

- Designed and implemented a cloud based application to interact with a scientific model. I worked with stakeholders to identify requirements, I reviewed potential solutions and then implemented the quantitative model and web app.
- Managed research into the application of different machine learning techniques on engineering problems.
- Managed and analysed a series of experiments to quantify the performance of various sports related technologies. I performed statistical analysis of the results and communicated the findings in presentations and concise reports.
- Developed a quantitative model for a sports simulator. I implemented algorithms described in journal papers in a Python package. I implemented CI/CD technologies and wrote documentation using Sphinx.

**Hephaestus Data Solutions** (`https://hephaestusdata.co.uk`)                          *Southampton*

FULL STACK SOFTWARE ENGINEER AND DATA SCIENTIST                             *May, 2020 - Present*

- Development of web based data driven decision support applications.
- Data science problem analysis.

**DSTL**                                                            *Portsdown West, Portsmouth*

NAVAL ARCHITECT                                                            *Sep 2013 - Aug 2014*

- Developed a techno-economic model in Excel VBA to manage the design and costing of complex engineering artefacts.

## Projects

**Uncertainty in Marine Weather Routing: An Application to Polynesian Seafaring**

(`https://tajd.github.io/projects/uncertainty-routing-polynesia`)

UNIVERSITY OF SOUTHAMPTON

- Implemented a novel method for quantifying the contribution of different sources of uncertainty in marine weather route predictions.
- Developed a complex quantitative model written in Julia which was deployed on a cloud based distributed computing system.
- Used Bayesian statistics to derive new insight into an archaeological problem: The Settlement of Polynesia.

**Data science**

PERSONAL

- Analysed the emotional content of tweets to demonstrate that tweets in favour of "Leave" had higher levels of negative emotion than those in favour of leave, at the PyData London 2019 hackathon for democracy.
- Identified groups of local area authorities which had similar levels of homelessness based on economic indexes for the charity Shelter at a DataDive hackathon hosted in Southampton.

## Languages and Frameworks

Python, Dash, Scipy, Numpy, Pandas, SQL, Tensorflow, Pytorch, Scikit Learn, Git, Jenkins, CI/CD, Heroku, AWS, Codecov, Django, Postgres, Docker, Linux, HTML, CSS