Dr Thomas Dickson

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tajd.github.io

CAREER SUMMARY

I am a research scientist currently supporting Team GB with research and training tool development. I am a successful independent researcher who is practiced at identifying how complex human problems may be investigated using quantitative methods. I have successfully worked as part of teams to win national sailing yacht regattas, solve engineering tasks and to perform novel research.

TECHNICAL SKILLS

Languages & Software: Python (numpy, matplotlib, pandas, plotly, scikit-learn, sphinx, tensorflow), Julia, Docker, Heroku, AWS (EC2), Matlab, Latex, Common Lisp, Excel VBA, MySQL, CI/CD pipelines, test development, version control (git), Jekll, Hugo, vim
Operating Systems: Linux, Windows, Unix
Numerical Analysis: Optimization, Machine Learning, Linear Algebra, Calculus, Monte Carlo Methods, Iterative Methods, Parallel Programming, Data Structures, Uncertainty analysis, Sensitivity analysis

EXPERIENCE

English Institute of Sport Research Fellow December 2019 - Present
Performance Sport Engineering Laboratory, University of Southampton

- Used machine learning to improve performance models and design techniques used in marine engineering.
- Developed web dashboards to deliver research directly to Olympic teams.
- Data analysis and communication of complex physical and numerical experiments.
- Communicated clear understanding of technical concepts in conference presentations and reports.

Naval architect September 2013 - August 2014, Summer 2015
DSTL, Portsmouth, UK

- Costed complex engineering projects by implementing a techno-economic model written in Excel VBA.
- Conveyed understanding of complex technical concepts to team members which produced impactful and relevant reports.

EDUCATION

PhD, Uncertainty in Marine Weather Routing; An application into Polynesian Seafaring
University of Southampton, Southampton, UK, 2016-2020

- Discovered novel insight into complex human problems by developing and applying novel quantitative methods which ran on cloud based computing resources.
- Quantified the relevance of different factors in an experiment using computational Bayesian statistics (PyMC3).
- Identified significant weather pattern types by applying clustering techniques to large sets of weather data.
- Communicated novel insights from my research by Journal papers and conference presentations to a wide variety of audiences, including archaeologists and international programming conferences. Link to video here.

MEng, Ship Science
University of Southampton, Southampton, UK, 2011-2016

- Contributed to a conference paper after conducting novel independent research for my 3rd year project.
- Solid fundamentals in linear algebra, statistics, optimisation and calculus.