

Timothy Hyndman



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About Me

I am a passionate data and machine learning expert with a PhD in probability and statistics. I thrive when rapidly learning new technologies and coming up with creative solutions for making complex technology easy to use.

Experience



Principal Data Scientist

Senior Data Scientist

Predictive Analytics Group

September 2023 to present

January 2021 to August 2023

- Used a large language model (LLM) to build a prototype AI chatbot for a sports scheduling web-app.
 - Empowered the chatbot to translate complex scheduling rules into user-friendly steps, streamlining the customer experience by enabling them to express their desired outcomes in natural language.
 - Set data requirements for the chatbot's knowledge base.
 - Used text embeddings to fetch documents from the knowledge base that are most relevant to user messages.
- Lead developer, mathematician, and architect for the optimiser for a sports scheduling web-app.
 - Researched and developed solutions that made previously unsolvable problems easily solved. These solutions included original and novel generalisations of methods from the academic literature.
 - Played a pivotal role in setting system design, data structures, architecture, and design patterns in collaboration with backend, frontend, and design teams.
 - Continuously prototyped and tested new feature ideas, providing direction for future development to senior management.
 - Wrote CI/CD pipelines for automated testing and publishing of python libraries and documentation.
- Demonstrated strong coding proficiency in python by refactoring critical sections of code, resulting in a 500% improvement in performance. Introduced new coding standards, leading to praise from senior staff members for elevating the code quality company-wide.



Data Scientist

Biarri

May 2019 to December 2020

- Researched, developed, and deployed machine learning (ML) models for clients across multiple industry verticals.
- Technical lead on a project for a major Australian fuel retailer to recommend real-time fuel prices at over 500 stores.
 - Deeply involved at all stages of the machine learning model life cycle - from data preprocessing and model development to deployment and ongoing optimization.
 - Used SQL in AWS Athena to process over 100GB of raw data.
 - Created custom predictive ML models for multiple sources of revenue.
 - Presented key findings and results, clearly explaining technical concepts to non-technical stakeholders.
 - Used Argo workflow to orchestrate both Python and R applications, and assisted in deploying the solution to the client's Azure infrastructure where it is now used Australia wide.
- Researched and developed an ML model to recommend optimal markdown prices for sports and outdoor retailers, resulting in a net increase in margin of approximately \$200k or 20%.
- Developed ranking algorithms for a competitive form of Poker, performed performance analysis on a 3rd party's electricity forecasting algorithms, identified factors correlating with poor sales growth for an outdoor activities retailer, identified bottlenecks in a processing pipeline for a large government organisation.

Experience (cont.)



MONASH University

Research Assistant

Monash University

2019

- Proved original and novel results about a model that is foundational to various phenomena in physics.
- Integrated cutting-edge developments from the academic literature into our research.
- The outcome of this work, combined with the relevant parts from my thesis, is a working paper (detailed below).

Technical Skills

Programming: Python, R, SQL, HTML, CSS, C++, JavaScript, Bash, MATLAB

Libraries: Pandas, Numpy, SciPy, Numba, TensorFlow, Keras, PuLP, OpenCV, Scikit-learn, PySpark, NLTK, Langchain

Tools and Technologies: Airflow, MLflow, Jupyter notebook, CI/CD pipelines, Linux, Git, Docker, LaTeX

Cloud: AWS (SageMaker, S3, Athena, Lambda, SAM, Quicksight), Confluence, Bitbucket, Gitlab, Github

Education History



THE UNIVERSITY OF
MELBOURNE

Doctor of Philosophy in Probability and Statistics

Institution: The University of Melbourne

2015 to 2019



MONASH University

Bachelor of Science (Honours) in Mathematics

Institution: Monash University

2011 to 2014

- Awarded with First Class Honours



Australian
Music
Examinations
Board

A. Mus. A (Piano)

Institution: Australian Music Examinations Board

2011

Open Source R Packages

fable (Contributor) - Tidy time series forecasting

cricketdata (Author) - International cricket data for men and women, Tests, ODIs, and T20s

icons (Contributor) - Embed SVG icons in R documents such as slides, reports and apps

deconvolve (Lead developer) - Provides tools for performing non-parametric deconvolution of measurement error problems

Publications

- Collevocchio, A., Garoni, T. M., Hyndman, T., & Zhou, E. (2018). The coupling time for the Ising heat-bath dynamics [Working Paper].
- Collevocchio, A., Garoni, T. M., Hyndman, T., & Tokarev, D. (2016). The worm process for the Ising model is rapidly mixing. J. Stat. Phys., 164(5), 1082–1102.

References

Available upon request.