Timothy **Hyndman**

Data Scientist

Melbourne, Australia

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Education

University of Melbourne	*Melbourne, Australia*
Ph.D.	*2015 – 2019*

- Thesis: 'The coupling time for the Ising heat-bath dynamics & efficient optimization for statistical inference'.
- Completed under the supervision of Prof. Peter Taylor, Prof. Aurore Delaigle, and Assoc. Prof. Tim Garoni.

Monash University	*Clayton, Australia*
B.Sc.(Hons)	*2011 – 2014*

- Honours thesis: proved that a Markov chain with close ties to the Ising model (the 'worm chain') was rapidly mixing.
- GPA of 3.957, H1 honours result with an average mark of 93.

Australian Music Examinations Board	*Melbourne, Australia*
A.Mus.A (Piano)	*2011*

Employment History

Biarri	*Windsor, Australia*
Data scientist	*May. 2019 - Present*

- Technical lead on a project with one of Australia's major fuel retailers to recommend real-time fuel prices at over 500 stores. Starting with over 100GB of raw transaction data, I developed predictive models for short term fuel volume forecasts at candidate prices, as well as predictive models for in-store purchases and long term effects of difference pricing strategies. I was one of two developers for the final software, and helped deploy the solution to the client's Azure infrastructure. The solution is currently in a trial phase and being used at approximately 80 stores Australia wide.
- Developed tool to suggest 'optimal' markdown prices for a group of sports and outdoor retailers. The challenge was to recommend a price that would allow them to sell stock within an allocated time while maximising profit. After two trial implementations, the net increase in margin was measured at approximately $200k or 20%.
- Received feedback that we were 'the best value client we have ever had' by a large government organisation for my analytics work on one of their processing pipelines.
- I have also developed ranking algorithms for a competitive form of Poker, produced a performance analysis on a 3rd party's electricity forecasting algorithms, and determined factors that correlated with poor sales growth for an outdoor activities retailer.

Monash University	*Clayton, Australia*
Research assistant	*2019*

- Worked with Assoc. Prof. Tim Garoni on improving the results proved in my thesis. The outcome of this work, combined with the relevant parts from my thesis, is a working paper (detailed below).

University of Melbourne	*Melbourne, Australia*
Tutor	*2016 – 2018*

- Tutored Linear Algebra (MAST10007)

Monash University	*Clayton, Australia*
Teaching Associate	*2013 – 2014*

- Tutored analysis of change (MTH1020) and differential geometry (MTH3110). Mentioned in student evaluations as one of the best parts of the differential geometry unit.

Monash University	*Clayton, Australia*
AMSI Summer Research Scholarship	*2012 – 2013*

- Supervised by Prof. Kate Smith-Miles and Dr Davaatseren Baatar. Worked on optimising an instrument scheduler for Leica Microsystems.

Relevant Skills

Programming

PYTHON, R, MATLAB, SQL, BASH

Tools

GIT, DOCKER, AWS (S3 AND ATHENA), LATEX

Software

2018	**deconvolve**: Lead developer Provides tools for performing non-parametric deconvolution of measurement error problems
2017	**icon**: Author Embed SVG icons in R documents such as slides, reports and apps.
2017	**cricketdata**: Author International cricket data for men and women, Tests, ODIs, and T20s.

Awards & Achievements

AWARDS

2020	Winner of the annual 'Power of Mathematics' award	*Biarri Optimisation*
2012 – 2014	Science Dean's list Fellowship	*Monash University*
2011	Premier's VCE award for mathematics	*VCAA*
2010	Australian Student Prize	*VCAA*
2010	Australian Defence Force Long Tan Leadership and Teamwork award	*ADF*

SCHOLARSHIPS

2015	ACEMS top-up scholarship	*ACEMS*
2015	Australian Postgraduate Award	*Australian Government*
2014	Monash jubilee honours scholarship	*Monash University*
2011	Science merit scholarship	*Monash University*

COMPETITIONS

2017	Winner 'Advanced sampling & exploration competition'	*ACEMS*
2016	Special mention 'Advanced sampling & exploration competition'	*ACEMS*
2015	Winner 'Advanced sampling & exploration competition'	*ACEMS*

Publications

RESEARCH PAPERS

1. Collevecchio, A, TM Garoni, T Hyndman, and D Tokarev (2016). The Worm process for the Ising model is rapidly mixing. *J. Stat. Phys.* **164**(5), 1082–1102.
2. Collevecchio, A, TM Garoni, T Hyndman, and E Zhou (2018). *The coupling time for the Ising heat-bath dynamics*. Working Paper.
3. Delaigle, A, T Hyndman, and T Wang (2019). *deconvolve-package: Deconvolution tools for measurement error problems*. Working Paper.