



Timothy Hyndman

DATA SCIENTIST

Melbourne, Australia

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Education

University of Melbourne

Melbourne, Australia

PH.D. 2015-2019

- Thesis titled '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 research project 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 suggest 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 sport and outdoor retailers. The challenge was to suggest a price that would allow them to get rid of 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 competitor 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), TEX

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 | <i>Biarri Optimisation</i> |
| 2012-2014 | Science dean's list fellowship award | <i>Monash University</i> |
| 2011 | Premier's VCE award for mathematics | <i>VCAA</i> |
| 2010 | Australian Student Prize | <i>VCAA</i> |
| 2010 | Australian Defence Force Long Tan Leadership and Teamwork award | <i>ADF</i> |

SCHOLARSHIPS

- | | | |
|------|------------------------------------|------------------------------|
| 2015 | ACEMS top-up scholarship | <i>ACEMS</i> |
| 2015 | Australian Postgraduate Award | <i>Australian Government</i> |
| 2014 | Monash jubilee honours scholarship | <i>Monash University</i> |
| 2011 | Science merit scholarship | <i>Monash University</i> |

COMPETITIONS

- | | | |
|------|---|--------------|
| 2017 | Winner 'Advanced sampling & exploration competition' | <i>ACEMS</i> |
| 2016 | Special mention 'Advanced sampling & exploration competition' | <i>ACEMS</i> |
| 2015 | Winner 'Advanced sampling & exploration competition' | <i>ACEMS</i> |

Publications

RESEARCH PAPERS

1. Collevocchio, 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. Collevocchio, 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.