

# Anastasios Nicholas Panagiotelis

Associate Professor

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Address: Discipline of Business Analytics  
The University of Sydney Business School  
Abercrombie Bulidng, cnr Abercrombie Rd and  
Codrington St Darlington, NSW, 2006, Australia  
Email: anastasios.panagiotelis@sydney.edu.au  
DOB: 24 January 1983  
Github: anastasiospanagiotelis  
Website: anastasiospanagiotelis.netlify.com  
Citizenship: Australian

## Research

### Refereed Journal Articles

1. **A. Panagiotelis**, P. Gamakumara, G. Athanasopoulos, and R. Hyndman (2021). Forecast Reconciliation: A geometric view with new insights on bias correction. *International Journal of Forecasting* **37**(1), 343–359.
2. Eckert, F., R. Hyndman, and **A. Panagiotelis** (2020). Forecasting Swiss exports using Bayesian forecast reconciliation. *European Journal of Operational Research* **accepted**.
3. Gunawan, D., **A. Panagiotelis**, W. Griffiths, and D. Chotikapanich (2020). Bayesian weighted inference from surveys. *Australian & New Zealand Journal of Statistics* **62**(1), 71–94.
4. **A. Panagiotelis**, G. Athanasopoulos, B. Jiang, R. Hyndman, and F. Vahid (2019). Macroeconomic forecasting for Australia using a large number of predictors. *International Journal of Forecasting* **35**, 616–633.
5. Jeon, J., **A. Panagiotelis**, and F. Petropoulos (2019). Probabilistic forecast reconciliation with applications to wind power and electric load. *European Journal of Operational Research* **279**(2), 364–379.
6. Li, H., H. Li, Y. Lu, and **A. Panagiotelis** (2019). A forecast reconciliation approach to cause-of-death mortality modeling. *Insurance Mathematics and Economics* **86**, 122–133.
7. Tan, B. K., **A. Panagiotelis**, and G. Athanasopoulos (2019). Bayesian inference for the one-factor copula model. *Journal of Computational and Graphical Statistics* **28**(1), 155–173.
8. **Panagiotelis, A.**, C. Czado, H. Joe, and J. Stöber (2017). Model selection for regular vine copulas. *Computational Statistics and Data Analysis* **106**, 138–152.
9. **Panagiotelis, A.**, M. Smith, and P. Danaher (2014). From Amazon to Apple: Modeling online retail sales, purchase incidence and visit behaviour. *Journal of Business and Economic Statistics* **32**(1), 14–29.
10. **Panagiotelis, A.**, C. Czado, and H. Joe (2012). Pair copula constructions for multivariate discrete data. *Journal of the American Statistical Association* **107**(499), 1063–1072.
11. **Panagiotelis, A.** and M. Smith (2010). Bayesian skew selection for multivariate models. *Computational Statistics and Data Analysis* **54**(7), 1824–1839.
12. **Panagiotelis, A.** and M. Smith (2008). Bayesian density forecasting of intraday electricity prices using multivariate skew t distributions. *International Journal of Forecasting* **24**(4), 710–727.
13. **Panagiotelis, A.** and M. Smith (2008). Bayesian identification, selection and estimation of semiparametric functions in high-dimensional additive models. *Journal of Econometrics* **143**(2), 291–316.

### Submitted Papers

14. **A. Panagiotelis**, P. Gamakumara, G. Athanasopoulos, and R. Hyndman. (2020). “Probabilistic forecasts in hierarchical time series”. Submitted to *Journal of the American Statistical Association*.
15. Tomasetti, N., C. Forbes, and **A. Panagiotelis**. (2020). “Updating variational Bayes: Fast sequential posterior inference”. Submitted to *Statistics and Computing*.

### Book Chapters

16. Athanasopoulos, G., P. Gamakumara, **A. Panagiotelis**, and R. Hyndman (2020). “Hierarchical time series”. In: *Macroeconomic forecasting in the era of big data*. Springer. pp.703–735
17. Sarafidis, V., **A. Panagiotelis**, and T. Panagiotidis (2017). “When did it go wrong? The case of Greek sovereign debt”. In: *The Greek Debt Crisis*. Palgrave MacMillan. pp.1–35

## Working Papers

18. Behlul, T., **A. Panagiotelis**, G. Athanasopoulos, R. Hyndman, and F. Vahid. (2017). "The Australian Macro Database: An online resource for macroeconomic research in Australia". *Monash Econometrics and Business Statistics Working paper series 1/17*
19. Jiang, B., **A. Panagiotelis**, G. Athanasopoulos, R. Hyndman, and F. Vahid. (2016). "Bayesian rank selection for multivariate regression". *Monash Econometrics and Business Statistics Working paper series 6/16*

## Software

20. Panagiotelis, A. *ProbReco: Score Optimal Probabilistic Forecast Reconciliation*. R package version 0.1.0.  
<https://github.com/anastasiospanagiotelis/ProbReco>.

## Current Projects

21. Li, F., Y. Kang, and **A. Panagiotelis**. (2020). "Modelling dynamic multivariate dependence with copulas"
22. Li, H., **A. Panagiotelis**, and R. Hyndman. (2020). "Who, When and Where? Assessing the Impact of Climate Change on Mortality"
23. **Panagiotelis, A.**, R. Kohn, and S. Sisson. (2020). "High-dimensional approximate Bayesian computation using vine copulas"

## Research Funding

- 2020 Panagiotelis, A.**, R.J. Hyndman, G. Athanasopoulos "Forecasting site level net energy load for cost efficient dispatch of distributed energy resources.", Centre for Future Technologies (C4NET) Grant (with AGL Pty. Ltd.).  
Total funding: **AU\$130,120**.
- 2013 (Completed) Panagiotelis, A.**, G. Athanasopoulos, R.J. Hyndman, F. Vahid, "Macroeconomic forecasting in a 'Big-Data' world", *ARC Discovery Project*.  
Total funding: **AU\$335,000**.

## Conferences

- 2020 International Symposium on Forecasting, Rio de Janeiro (Virtual), 26-28 October.
- 2019 Workshop on Vine Copulas and their Applications, Munich, 8-9 July.
- 2019 International Symposium on Forecasting, Thessaloniki, 16-20 June.
- 2018 Australasian Actuarial Education and Research Symposium, Sydney 5-6 December.
- 2018 The Sydney Time Series and Forecasting Symposium, Sydney, 13-14 November.
- 2018 International Symposium on Forecasting, Boulder, 17-20 June.
- 2018 Analysing Large Collections of Time Series, Shonan, 12-15 February.
- 2017 The Sydney Time Series and Forecasting Symposium, Sydney, 30 November - 1 December.
- 2017 International Symposium on Forecasting, Cairns, 25-28 June.
- 2017 Melbourne Data Science Initiative, Melbourne, 29 May - 1 June.
- 2017 Ecosta, Hong Kong, 15-17 June.
- 2016 CMStatistics, Seville, 9-11 December.
- 2016 China meeting of the Econometric Society, Chengdu, 25-27 June.
- 2015 The Economic Value of Macroeconomic Forecasts with Big Data, Warwick, 28 June - 1 July.
- 2014 China meeting of the Econometric Society, Xiamen, 25-27 June.
- 2013 International Symposium on Forecasting, Seoul, 24-27 June.
- 2013 China meeting of the Econometric Society, Beijing, 13-16 June.
- 2012 Workshop on Copula Theory and Application, Krakow, 9-11 July.
- 2012 International Society for Bayesian Analysis World Meeting, Kyoto, 25-29 June.
- 2011 Joint Statistical Meetings, Miami, 30 July - 4 August.
- 2010 CSDA International Conference on Computational and Financial Econometrics, 10-12 December.
- 2010 Joint Statistical Meetings, Vancouver, 31 July - 5 August.

## PhD Supervision

Fan Cheng (PhD - Monash)	<i>Manifold learning on probability distributions</i> Expected completion date: August 2022.
Puwasala Gamakumara (PhD - Monash)	<i>Probabilistic forecasts reconciliation: Theory and applications.</i> Completed: March 2020.
Nathaniel Tomasetti (PhD - Monash)	<i>Approximate Bayesian updating for sequential inference of data Streams.</i> Completed: March 2020.
Ban Kheng Tan (PhD - Monash)	<i>Factor copula models and their applications.</i> Completed: December 2018.
David Gunawan (PhD - Monash)	<i>Bayesian inference for the measurement of multidimensional inequality and deprivation: an Australian case study.</i> Completed: March 2016.

I have also supervised the thesis projects of 15 students at an Honours or Masters level at Monash University and TU Munich. These projects have covered actuarial studies (survival analysis), economics (macro forecasting), finance (order book data, value at risk), marketing (online retail), and energy.

## Refereeing Responsibilities

- Referee for *Journal of the American Statistical Association*, *Journal of Econometrics*, *European Journal of Operational Research*, *Journal of Business and Economic Statistics*, *Journal of the Royal Statistics Society Series C*, *Annals of Applied Statistics*, *Technometrics*, *Journal of Economic Dynamics and Control*, *Econometric Reviews*, *Journal of Multivariate Analysis*, *International Journal of Forecasting*, *Computational Statistics and Data Analysis*, *Australian and New Zealand Journal of Statistics*, *Electronic Journal of Statistics*, *Journal of Statistical Software*.
- Expert reviewer for internal report by NSW Bureau of Crime Statistics & Research
- Referee for competitive grants for the *Australian Research Council (Discovery Projects and DECRA)* and for the *Estonian Research Council*.
- External examiner for five *PhD theses (three domestic, two international)*.

## Other Research Activity

- **Board of Directors, International Institute of Forecasters (IIF), since 2020.**  
The International Institute of Forecasters (IIF), is dedicated to developing and furthering the generation, distribution, and use of knowledge on forecasting.
- **Program Committee International Symposium of Forecasting, Thessaloniki, 2019.**  
Assisted in curating over three hundred abstracts across a diverse range of disciplines (machine learning, statistics, operations research) and application areas.
- **Associate Investigator, Australian Research Council Centre of Excellence for Mathematical and Statistical Frontiers (ACEMS), since 2018.**  
The focus of ACEMS is innovative methods for data analysis with theoretical, methodological and computational foundations, provided by advanced mathematical and statistical modelling.
- **Seminar coordinator for departmental weekly seminar series from 2014-2016.**  
As coordinator, my main contribution was to broaden the seminar series inviting experts in business analytics and actuarial studies as well as econometricians and statisticians.
- **Organising Committee, 4<sup>th</sup> Workshop on Vine Copula distributions and applications, 2011.**  
This workshop had over fifty participants specialising in copula theory and applications.

## Teaching

### Teaching Philosophy

My philosophy is that all teaching innovation and the adoption of technology must support the simple maxim that 'students learn by doing'. I ensure that classes are engaging both by using material that allows students to interactively explore data and by embedding tasks and exercises into lectures that reinforce learning. The importance of aligning assessment to learning outcomes is another important dimension of my teaching. I have managed to divide assessment into tasks that assess technical knowledge for which grading and feedback can be automated, and tasks that are more open ended assignments and mimic data analysis in a real business setting. My approach has been successful in teaching relatively large classes (200-400 students).

### Teaching Awards

#### **2019 Nominee Vice Chancellor's Award for Technological Innovation in Teaching.**

Achieved for using of a number of modern tools for interactive data analysis in teaching and developing web-based applications to automate the grading and feedback of assessment.

#### **2018 Winner Dean's Award for Teaching Excellence.**

Achieved for developing content and assessment that test students' creativity and critical thinking while ensuring interactivity is present in all teaching modes. Prize of a AU\$5000 teaching development grant.

#### **2018 Nominee Monash Postgraduate Students' Association, Lecturer of the Year Award.**

This award is driven by the Monash postgraduate community. It acknowledges outstanding lecturers from all faculties and all campuses.

### Courses/ Units Taught

2019-2020	Data Visualisation and Analytics. Lecturer, Monash University.
2017-2020	High Dimensional Data Analysis. Lecturer, Monash University.
2017-2018	Introductory Econometrics. Lecturer, Monash University
2016	Statistical Computing. Lecturer Central University of Finance and Economics, Beijing.
2013-2016	Survey Data Analysis. Lecturer, Monash University.
2012	Applied Econometrics. Lecturer, Monash University.
2008	Quantitative Methods for Business. Lecturer, University of Sydney.
2005-2009	Econometric Models and Methods. Tutor, University of Sydney.

## Computing Skills

Programming and data analysis	Proficient at using: R, FORTRAN, MATLAB, C, C++.
Collaboration and reproducible research	Proficient at using: Git for version control, Github and Bitbucket for collaboration, LaTeX and R Markdown for preparing documents and presentations.
Web Based Interactive graphics	Proficient at using Shiny with extensive use in teaching
Parallel computing	Experience using Linux clusters with SLURM and SGE.
Web Design	Experience using the LAMP stack to develop ausmacrodata.org website. Personal website developed using Hugo and Blogdown.
Web Scraping	Experience using Selenium and R package rvest to scrape data from websites.

## Leadership

- **Director of Education: Department of *Econometrics and Business Statistics*.**

The Director of Education represents the Department in important Faculty level fora, including the Faculty Education Committee. The role requires leadership on educational strategy, policy and quality assurance as well as ensuring smooth operation of day to day tasks in the teaching and learning space.

- **Committee Chair: Review of *Business Statistics major*.**

This review involved analysing data on all undergraduate students taking at least one unit offered by our department, consultation with industry partners on skills required in the workforce and a thorough review of units to eliminate unnecessary duplication of content. As a result of this review, two new units have been proposed, and the name of the major has been changed to *Business Analytics and Statistics*.

- **Committee Member: Departmental *Senior Advisory Group*.**

This group meets monthly to discuss and advise the head of department on important strategic decisions for the Department of Econometrics and Business Statistics.

- **Committee Member: *Bachelor of Business review working party and core meeting group*.**

The Bachelor of Business is one of the largest undergraduate programs offered at Monash University. In 2019 a major external review of the program was conducted. I am a member of two committees tasked with implementing some key recommendations of this report. One particular such reform is the development of a high-level, multidisciplinary unit on *Harnessing Big Data for Business and Society*.

- **Participant: *Emerging Academic Leaders Program, Monash University*.**

The Emerging Academic Leaders' Program is for talented academic staff to learn about academic leadership. The themes of this program included cultivating a collegial mindset towards academic leaders and the executive group and identifying strengths and opportunities for growth in University leadership/management.

- **Committee Member: Selection panel for *staff recruitment***

I have been a member of the selection panel of a number of rounds of staff recruitment. This has been for positions targeting at candidates with a strength in Business Analytics as well as Econometrics. In the case of the latter, I attended the 2018 *American Economic Association job market*) to conduct interviews.

## Employment and Education

### Employment

Sep 2020 –	<b>Associate Professor</b> Discipline of Business Analytics, The University of Sydney Business School.
Apr 2019 – Sep 2020	<b>Associate Professor</b> Department of Econometrics and Business Statistics, Monash University.
Jan 2015 – Mar 2019	<b>Senior Lecturer</b> Department of Econometrics and Business Statistics, Monash University.
May-2016 – July 2016	<b>Guest Lecturer</b> Department of Statistics, Central University of Finance and Economics, Beijing, China
Sep 2011 – Dec 2014	<b>Lecturer</b> Department of Econometrics and Business Statistics, Monash University.

## Employment (cont.)

Aug 2009 – Jul 2011	<b>Alexander von Humboldt Post-Doctoral Fellow</b> Lehrstuhl für Mathematische Statistik, Technische Universität München, Germany. <i>Alexander von Humboldt Fellowship is awarded on the basis of academic achievement by a competitive, independent, peer reviewed process.</i>
Mar 2009 – May 2009	<b>Casual Lecturer</b> Econometrics and Business Statistics, University of Sydney, Australia.
Mar 2003 – May 2009	<b>Casual Tutor</b> Econometrics and Business Statistics, University of Sydney, Australia.
Mar 2009	<b>Consultant</b> Quant Solutions.
Jan 2009 – May 2009	<b>Research Assistant.</b> Melbourne Business School, Australia.
Sep 2006 – Jan 2007	<b>Consultant.</b> Rismark International.
Nov 2003 – Jan 2004	<b>Cadetship.</b> Reserve Bank of Australia.

## Education

2009	Ph.D.	Sydney University, Australia.
2004	BEC(Hons)	Sydney University, Australia ( <i>won University Medal for outstanding performance</i> ).

## Referees

### Professor Rob J Hyndman

Head of Department.  
Department of Econometrics and Business Statistics  
Monash University, VIC 3800, Australia.  
Email: rob.hyndman@monash.edu  
Telephone: + 61 3 990 52358

### Professor Michael Smith

Chair of Management (Econometrics).  
University of Melbourne  
200 Leicester Street, Carlton, VIC 3053, Australia.  
Email: Mike.Smith@mbs.edu  
Telephone: +61 3 9349 8257

### Professor Claudia Czado

Lehrstuhl für Mathematische Statistik  
Technische Universität München.  
Parkring 13 Garching Hochbrück, 85748, Germany  
Email: cczado@ma.tum.de  
Telephone: +49 89 28917428