

# Yangzhuoran Fin Yang

PHD STUDENT IN STATISTICS  
Monash University, Australia

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## Education

### Doctor of Philosophy in Statistics

MONASH UNIVERSITY

- Supervisors: Professor Rob J Hyndman, Professor George Athanasopoulos, Associate Professor Anastasios Panagiotelis
- Thesis: Component-based Approach in Multivariate and Hierarchical Forecasting
- Expected July 2024 (Intermission from May 2021 to Feb 2022 due to COVID-19)

Clayton, Australia

Apr. 2020 - Present

### Bachelor of Commerce (Hons) in Econometrics

MONASH UNIVERSITY

- Thesis: Optimal portfolio selection via dimensional reduction in a stochastic optimal control setting
- GPA: 3.875; GRADE H1

Clayton, Australia

Mar. 2019 - Dec. 2019

### Bachelor of Actuarial Science

MONASH UNIVERSITY

- GPA: 4; WAM: 90.323

Clayton, Australia

Jul. 2016 - Oct. 2018

## Experience

### Teaching Associate

MONASH UNIVERSITY

- Actuarial Science, Econometrics and Business Analytics

Clayton, Australia

2017, 2019 - 2020, 2022 - Present

### Applied Economist

HUOHUA SIWEI

- Experimental design and evaluation, data mining and R web app development

Beijing, China

Apr. 2021 - Jan. 2022

### Adjunct Lecturer

MONASH UNIVERSITY

- Suzhou Industrial Park Monash Research Institute of Science and Technology

Suzhou, China

Oct. 2020 - Jun. 2021

### Visiting Student

SHANGHAITECH UNIVERSITY SIST

- Supervisor: Assistant Professor Ziping Zhao

Shanghai, China

Dec. 2019 - Aug. 2020

### Research Assistant

MONASH UNIVERSITY

- Developments of R packages and data wrangling
- Supervisors: Assoc Professor Bonsoo Koo, Assoc Professor Dan Zhu, and Professor Rob Hyndman

Clayton, Australia

Sep. 2017 - Aug. 2020

## Teaching

### Applied Forecasting [Graduate and undergraduate level]

HIGHEST STUDENT SATISFACTION BAND; ONE OF THE TOP PERFORMING UNITS IN THE STUDENT EVALUATION

Sem 1 2022, Sem 1 2023

### Principles of Econometrics [Graduate and undergraduate level]

HIGHEST STUDENT SATISFACTION BAND

Sem 2 2023

### Advanced Statistical Modelling [Graduate and undergraduate level]

HIGHEST STUDENT SATISFACTION BAND

Sem 2 2022, Sem 1 2023

### Business Statistics [Graduate and undergraduate level]

HIGHEST STUDENT SATISFACTION BAND; ONE OF THE TOP PERFORMING UNITS IN THE STUDENT EVALUATION

NOV12 2020, Sem 1 2021

### Business and Economic Statistics [Undergraduate level]

Sem 1 2019, Sem 2 2019

## Job Market Paper

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“Free Lunch Multivariate Forecast Projection: reducing forecast variance using linear combinations” by Yangzhuoran Fin Yang, Rob J. Hyndman, George Athanasopoulos and Anastasios Panagiotelis

*Abstract:* We introduce a novel forecast projection method designed to reduce forecast variance of arbitrary multivariate forecasts without introducing bias. This method offers a “free lunch” by requiring no additional data or information. The free-lunch method adjusts the forecasts of multivariate time series to be consistent with the forecasts of linear combinations (components) of the series by projecting all forecasts onto the space where the linear constraints are satisfied. The forecast variance can be reduced monotonically by including more components. For a given number of components, the proposed method achieves maximum forecast variance reduction among linear projections. Substantial variance reduction is observed in simulation and two applications on the Australian domestic tourism data set and the FRED-MD data set, validating theoretical findings. Notably, forecast projection with Principal Component Analysis (PCA) as the component construction method demonstrates effective variance reduction. We observe the source of the reduction is the reduction of model misspecification error.

## Publication

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Yang, Y. F., and Zhao, Z. (2020), “Online Robust Reduced-Rank Regression,” in 2020 IEEE 11th Sensor Array and Multichannel Signal Processing Workshop (SAM), pp. 1–5.

## Working papers

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1. “Nonlinear Dynamics of Kimchi Premium” by Bonsoo Koo, Myung Hwan Seo and Yangzhuoran Fin Yang (Under administrative revision)
2. “Forecast Multivariate Time Series using Lower Dimensional Components” by Yangzhuoran Fin Yang, Rob J. Hyndman, George Athanasopoulos and Anastasios Panagiotelis
3. “ycevo: An R Package for Yield Curve Nonparametric Estimation” jointly with Nico Purnomo, Wenying Yao and Bonsoo Koo
4. “Free Lunch Forecast Projection in Hierarchical Forecast Reconciliation”
5. “Forecasting Multiple Time Series with One-Sided Dynamic Autoregressive Principal Components: A hybrid of Dynamic Factor Model and Vector Autoregression”

## Professional activities

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### CONFERENCES

Jun. 2023 **43rd International Symposium on Forecasting**

Charlottesville, USA

Dec. 2020 **Doctoral Research Colloquium, Monash Business School**

Virtual

Jun. 2020 **11th IEEE Sensor Array and Multichannel Signal Processing Workshop**

Virtual

### REVIEW ACTIVITIES

European Journal of Operational Research

Since 2023

Economic Modelling

Since 2021

## Awards, Grants and Scholarships

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- 2023 International Symposium on Forecasting Travel Grant
- 2023 Monash Graduate Research Travel Grant
- 2020 - 2024 Monash Business School Co-funded Graduate Research Scholarship
- 2020 - 2024 Monash Graduate Scholarship
- 2020 IEEE Sensor Array and Multichannel Signal Processing Workshop Best Student Paper Award Finalist
- 2019 Monash Business School Dean's Honour
- 2019 Monash University Econometrics Honours Memorial Scholarship
- 2018 Monash Business School Prize for the Top Achieving Student in Actuarial Science (Undergraduate)
- 2018 Monash University Medal for Undergraduate Academic Excellence
- 2018 Monash Business School Dean's Honour
- 2018 Monash Business School Student Excellence Award in recognition of exceptional academic excellence (Business analytics, Modelling in finance and insurance, Applied forecasting for business and economics)
- 2018 The International Institute of Forecasters Student Forecasting Award offered by Monash University Applied Forecasting for Business and Economics
- 2017 Monash Business School Student Excellence Award in recognition of exceptional academic excellence (Statistical Thinking, Principles of Econometrics, Contingencies in insurance and pensions)

## Softwares

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1. Hyndman, R. J., Akram, M., Bergmeir, C., & O'Hara-Wild, M. (2018). *Mcomp: Data from the m-competitions* (Version 2.8) [Computer software]. <https://CRAN.R-project.org/package=Mcomp>
2. Yang, Y. F., & Zhao, Z. (2020). *RRRR: Online robust reduced-rank regression estimation* (Version 1.1.0) [Computer software]. <https://CRAN.R-project.org/package=RRRR>
3. Hyndman, R. J., & Yang, Y. F. (2019). *compenginets: Time series from http://www.comp-engine.org/timeseries/* (Version 0.1) [Computer software]. <https://github.com/robjhyndman/compenginets>
4. Hyndman, R. J. (2019). *demography: Forecasting mortality, fertility, migration and population data* (Version 1.22) [Computer software]. <https://CRAN.R-project.org/package=demography>
5. Yang, Y. F. (2020). *lazybar: Progress bar with remaining time forecast method* (Version 0.1.0) [Computer software]. <https://CRAN.R-project.org/package=lazybar>
6. Yang, Y. F. (2024). *lazyparser: Command line r-flavored argument parser*. <https://github.com/FinYang/lazyparser>
7. Yang, Y. F. (2020). *lazytype: Functions and addins to save keystrokes and clicks* (Version 0.0.0.9000) [Computer software]. <https://pkg.yangzhuoranyang.com/lazytype/>
8. O'Hara-Wild, M., & Yang, Y. F. (2024). *roam: Remote objects with active-binding magic*.
9. Hyndman, R. J. (2018). *tscompdata: Time series data from various forecasting competitions* (Version 0.0.1) [Computer software]. <https://github.com/robjhyndman/tscompdata>
10. Hyndman, R. J., & Yang, Y. F. (2020). *tsdl: Time series data library* (Version 0.1.0) [Computer software]. <https://finyang.github.io/tsdl/>
11. Hyndman, R. J., Kang, Y., Montero-Manso, P., Talagala, T., Wang, E., Yang, Y. F., O'Hara-Wild, M., Taieb, S. B., Hanqing, C., Lake, D. K., Laptev, N., & Moorman, J. R. (2020). *tsfeatures: Time series feature extraction* (Version 1.0.2) [Computer software]. <https://CRAN.R-project.org/package=tsfeatures>
12. Koo, B., Tomasetti, N., Goh, K.-Y., & Yang, Y. F. (2022). *ycevo: Nonparametric estimation of the yield curve evolution* (Version 0.1.2) [Computer software]. <https://CRAN.R-project.org/package=ycevo>

## Referees

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### Professor Rob J Hyndman

DEPARTMENT OF ECONOMETRICS & BUSINESS STATISTICS

- Email: [Rob.Hyndman@monash.edu](mailto:Rob.Hyndman@monash.edu)

Monash University

Clayton, Australia

### Professor George Athanasopoulos

DEPARTMENT OF ECONOMETRICS & BUSINESS STATISTICS

- Email: [George.Athanasopoulos@monash.edu](mailto:George.Athanasopoulos@monash.edu)

Monash University

Clayton, Australia

### Associate Professor Anastasios Panagiotelis

DISCIPLINE OF BUSINESS ANALYTICS

- Email: [anastasios.panagiotelis@sydney.edu.au](mailto:anastasios.panagiotelis@sydney.edu.au)

University of Sydney Business School

Darlington, Australia