Yangzhuoran Fin Yang

PhD Student in Statistics
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Education

Doctor of Philosophy in Statistics — *Clayton, Australia*
Monash University — *Apr. 2020 - Present*
- Supervisors: Professor Rob J Hyndman, Professor George Athanasopoulos, Associate Professor Anastasios Panagiotelis
- Thesis: Component-based Approaches in Multivariate and Hierarchical Forecasting
- Expected July 2024 (Intermission from May 2021 to Feb 2022 due to COVID-19)

Bachelor of Commerce (Hons) in Econometrics — *Clayton, Australia*
Monash University — *Mar. 2019 - Dec. 2019*
- Thesis: Optimal Portfolio Selection via Dimensional Reduction in a Stochastic Optimal Control Setting
- GPA: 3.875; GRADE H1

Bachelor of Actuarial Science — *Clayton, Australia*
Monash University — *Jul. 2016 - Oct. 2018*
- GPA: 4; WAM: 90.323

Experience

Teaching Associate — *Clayton, Australia*
Monash University — *2017, 2019 - 2020, 2022 - Present*
- Econometrics and Business Analytics

Research Assistant — *Clayton, Australia*
Monash University — *2017 - 2020, 2022 - Present*
- Developments of R packages and data wrangling

Applied Economist — *Beijing, China*
Huohua Siwei (Online Education) — *Apr. 2021 - Jan. 2022*
- Experimental design and evaluation, data mining and R web app development

Adjunct Lecturer — *Suzhou, China*
Monash University — *Oct. 2020 - Jun. 2021*
- Suzhou Industrial Park Monash Research Institute of Science and Techology

Visiting Student — *Shanghai, China*
ShanghaiTech University SIST — *Dec. 2019 - Aug. 2020*
- Supervisor: Assistant Professor Ziping Zhao

Teaching

Applied Forecasting — *Undergraduate and postgraduate*
Highest student satisfaction band; One of the top performing units in the Student Evaluation — *Sem 1 2022, Sem 1 2023*

Advanced Statistical Modelling — *Undergraduate and postgraduate*
Highest student satisfaction band — *Sem 2 2022, Sem 1 2023*

Principles of Econometrics — *Undergraduate and postgraduate*
Highest student satisfaction band — *Sem 2 2023*

Business Statistics — *Undergraduate and postgraduate*
Highest student satisfaction band; One of the top performing units in the Student Evaluation — *NOV12 2020, Sem 1 2021*

Business and Economic Statistics — *Undergraduate*
Sem 1 2019, Sem 2 2019, Sem 1 2024

Job Market Paper

"Forecast Linear Augmented Projection (FLAP): A free lunch to reduce forecast error variance" by Yangzhuoran Fin Yang, George Athanasopoulos, Rob J. Hyndman and Anastasios Panagiotelis

Abstract: A novel forecast linear augmented projection (FLAP) method is introduced. FLAP provably reduces the forecast error variance of any unbiased multivariate forecast without introducing bias. The method first constructs new series as linear combinations of the original series. Forecasts are then generated for both the original and new series. Finally, the full vector of forecasts is projected onto a linear subspace where the constraints implied by the combination weights hold. These new series are called components. It is proven that the trace of the forecast error variance is non-increasing with the number of components, and mild conditions are established for which it is strictly decreasing. It is also shown that the proposed method achieves maximum forecast error variance reduction among linear projections. The theoretical results are validated through simulations and two empirical applications based on Australian tourism and FRED-MD data. Notably, using FLAP with Principal Component Analysis (PCA) to construct the new series leads to substantial forecast error variance reduction.

Publication

1. Seo, M. H., Koo, B., & Yang, Y. F. (2024). Nonlinear dynamics of Kimchi premium. Economic Modelling, 135, 106726.
2. 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

1. "Forecast Multivariate Time Series using Lower Dimensional Components" by Yangzhuoran Fin Yang, Rob J. Hyndman, George Athanasopoulos and Anastasios Panagiotelis
2. "ycevo: An R Package for Nonparametric Yield Curve Estimation, Analyses and Prediction" by Yangzhuoran Fin Yang, Bonsoo Koo, Wenying Yao and Nico Purnomo
3. "Forecast Linear Augmented Projection in Hierarchical Forecast Reconciliation"
4. "Forecasting Multiple Time Series with One-Sided Dynamic Autoregressive Principal Components: A hybrid of Dynamic Factor Model and Vector Autoregression"

Conferences and Talks

Jul. 2024	**Annual useR! conference**	*Salzburg, Austria*
Jul. 2024	**44th International Symposium On Forecasting**	*Dijon, France*
Jun. 2024	**Annual Conference of the International Association for Applied Econometrics**	*Thessaloniki, Greece & Xiamen, China*
Apr. 2024	**Monash NUMBATs Seminar**	*Melbourne, Australia*
Jun. 2023	**43rd International Symposium on Forecasting**	*Charlottesville, USA*
Jun. 2020	**11th IEEE Sensor Array and Multichannel Signal Processing Workshop**	*Virtual*

Awards, Grants and Scholarships

- 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

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. (2024). *flap: Forecast linear augmented projection* (Version 0.1.0) [Computer software]. https://cran.r-project.org/package=flap
6. 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
7. Yang, Y. F. (2024). *lazyparser: Command line r-flavored argument parser* (Version 0.1.0) [Computer software]. https://github.com/FinYang/lazyparser
8. 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/
9. O'Hara-Wild, M., & Yang, Y. F. (2024). *roam: Remote objects with active-binding magic* (Version 0.0.0.9000) [Computer software].
10. Hyndman, R. J. (2018). *tscompdata: Time series data from various forecasting competitions* (Version 0.0.1) [Computer software]. https://github.com/robjhyndman/tscompdata
11. Hyndman, R. J., & Yang, Y. F. (2020). *tsdl: Time series data library* (Version 0.1.0) [Computer software]. https://finyang.github.io/tsdl/
12. 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
13. Koo, B., & Yang, Y. F. (2024). *ycevo: Nonparametric estimation of the yield curve evolution* (Version 0.2.0) [Computer software]. https://CRAN.R-project.org/package=ycevo

Referees

Professor Rob J Hyndman — *Monash University*

Department of Econometrics & Business Statistics — *Clayton, Australia*

- Email: Rob.Hyndman@monash.edu

Professor George Athanasopoulos — *Monash University*

Department of Econometrics & Business Statistics — *Clayton, Australia*

- Email: George.Athanasopoulos@monash.edu

Associate Professor Anastasios Panagiotelis — *University of Sydney Business School*

Discipline of Business Analytics — *Darlington, Australia*

- Email: Anastasios.Panagiotelis@sydney.edu.au