



THE LATEST RSPAS RESEARCH NEWS
& ANNOUNCEMENTS

RESEARCH REVIEW

TOP
PUBLICATION

Biometrika

NEW TO THE
FAMILY

Meet Ning & Emi

VOL 2023

Issue 4

Email your research news to
Phong.Ngo@anu.edu.au

Welcome to Issue 4 of *Research Review*

Welcome to Issue 4 of *Research Review*, the last for 2023.

We had a very busy last quarter, hosting three conferences and producing a lot of great research. Our hard work shows in the the success the school has had with multiple CBE Research Awards, ARC Grant Success and top publications!

I hope everyone had a happy and restful holiday period and feel rejuvenated and ready for another amazing year. My holidays was spent playing with kids (surprise!), it was certainly happy but unfortunately not restful. The cover photo is a picture of a patch of Lupin (aka Lupinus or Lupine) that the kids planted from seed in our garden which then bloomed magnificently in mid-Summer. This is the last of the flora themed covers, my creative team are working on a new look for 2024! In the meantime, happy reading!

Meet Ning Wang

Ning joined RSFAS in January as a Lecturer in Actuarial Studies. He completed his Master of Research at Macquarie University and received his PhD in Statistics from East China Normal University and PhD in Actuarial Studies from Macquarie University. Prior to joining RSFAS, he was a Research Fellow at University of Wollongong and Macquarie University. His current research interest is the application of stochastic optimal control in finance and insurance, including optimal reinsurance design, optimal portfolio selection, model uncertainty, stochastic differential game and life-cycle planning model. Ning's research contributions have appeared in *Insurance: Mathematics and Economics*, *Scandinavian Actuarial Journal*, *North American Actuarial Journal*, *Quantitative Finance*, *Annals of Operations Research*, etc.



Meet Meet Emi Tanaka

Emi Tanaka is a senior lecturer in statistics at the Biological Data Science Institute with joint affiliation at the Research School of Finance, Actuarial Studies, and Statistics. Her primary interest is to develop impactful methods and tools that can be readily used by practitioners. She interfaces across multiple disciplines to bridge statistical concepts and findings to a broad range of individuals. To this end, she has developed numerous open-source tools, primarily as R-packages, and resources aimed at making statistical methods accessible to a diverse audience. Her research area includes data visualisation, experimental design, mixed models, statistical workflow/practice, and software development. She's a big advocate of open science and an avid research software engineer so feel free to get in touch to nerd out about reproducibility practices and coding!



Visiting us soon

We have an active visitor program, if you know someone who is interested in visiting us please reach out and we will try to make it happen!

2024 looks like it will be another busy year for visitors. Here's who we have confirmed so far...

Nick Golding

Professor of Public Health
Curtin University
Visiting us 5-6 February



Visiting us soon

James Booth

Professor of Computational Biology
Cornell University
Visiting us mid-February to mid-May



Shang-Jin Wei

Professor of Finance and Economics,
Columbia University
Visiting us 21 April to 19 May



Toshihiro Hirano

Associate Professor
Kanto Gakuin University
Visiting us 1 September 2024 to 31 August
2025



* Sorry, I could not locate a photo!

George Pennacchi

Professor of Finance
University of Illinois
Visiting us 14-18 October



External engagement & service

Luca Maestrini presented

- "Multiplicative semiparametric regression for manifold-valued responses" (co-authored with Scealy, J. L., Hui, F. K. C. and Wood, A. T. A.) at the 16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics), HTW Berlin, University of Applied Sciences, Berlin, Germany, December 16–18 (invited talk)
- "Restricted maximum likelihood estimation in generalized linear mixed models" (co-authored Hui, F. K. C. and Welsh, A. H.) at the Australian Statistical Conference (ANZSC) 2023, Wollongong, Australia, December 10–15.

Terry Zhang presented

- "The Global Implied Volatility Surface, Convexity, and Common Predictability of International Equity Premia" at the following conferences: FIRN Annual Conference, Hobart Tasmania, November 21-24; New Zealand Finance Meeting Conference, Auckland, December 7-8; Sydney Banking and Financial Stability Conference, Sydney, December 8-9; Australasian Banking and Finance Conference, Sydney, December 13-15
- Terry also discussed a paper at each of the following conferences: FIRN Annual Conference, Hobart Tasmania, November 21-24; RSFAS Summer Research Camp, December 5-6; New Zealand Finance Meeting Conference, Auckland, December 7-8; Sydney Banking and Financial Stability Conference, Sydney, December 8-9; Australasian Banking and Finance Conference, Sydney, December 13-15

Emi Tanaka presented

- "(Re)marrying statistical thinking and visualisations" at Visual Data Science at IEEE VIS 2023 at Melbourne, Australia 23rd Oct 2023 (keynote speaker)
- "A tool to easily simulate valid experimental data" At the International Biometrics Australasian Region Conference, Bay of Islands, New Zealand 27 November to 1 December 2023
- "A quick and flexible visualisation system for the designs of experiments" At the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023 (invited speaker)
- Emi has also been appointed to the following editorial positions: Executive Editor of the R Journal as of this year; Statistical Software Editor at rOpenSci

Francis Hui presented "Homogeneity pursuit and variable selection in regression models for multivariate abundance data" at the International Biometrics Australasian Region Conference, Bay of Islands, New Zealand 27 November to 1 December 2023

External engagement & service

Alan Welsh presented "Insights into small area estimation using the nested error regression model" at the International Biometrics Australasian Region Conference, Bay of Islands, New Zealand 27 November to 1 December 2023

Insha Ullah presented "Impact of eplet mismatches on the risk of donor-specific antibodies and antibody-mediated rejection in simultaneous pancreas-kidney transplant recipients" at the International Biometrics Australasian Region Conference, Bay of Islands, New Zealand 27 November to 1 December 2023

Nickson Ning presented

- "A double fixed rank kriging approach to spatial regression models with covariate measurement error" at the International Biometrics Australasian Region Conference, Bay of Islands, New Zealand 27 November to 1 December 2023
- "A Double Fixed Rank Kriging Approach to Spatial Regression Models with Covariate Measurement Error" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Quan Vu presented "Prediction and prediction uncertainty with generalized linear mixed models" at the International Biometrics Australasian Region Conference, Bay of Islands, New Zealand 27 November to 1 December 2023

Kassel Hingee presented "Compositional data and rapid implementation of score matching estimators" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Le Chang presented "Homogeneity and Sparsity Pursuit Using Robust Adaptive Fused Lasso" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Janice Scealy presented "Score matching for microbiome compositional data" at the Institute for Mathematical Statistics Asia-Pacific Rim Meeting, Melbourne, January 4-7, 2024 (Invited talk, Invited session: compositional data analysis: some new fresh approaches which avoid transforming the data.

Lucy Hu presented "Expanding the Income Contingent Loan (ICL) to women with partner violence" (co-authored with Timothy Higgins, and Jananie William) at the 2023 Australasian Actuarial Education and Research Symposium (AAERS), Wellington, New Zealand, 23-24th November

External engagement & service

Nelson Chua presented "It's time to build: a small area estimation methodology for time-to-event data" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Santiago Marin presented "Scalable Posterior Sampling from Gaussian Mixture Models via Randomly Weighted Expectation-Conditional-Maximisation" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Sumonkanti Das presented "Estimation of daily smoking prevalence for disaggregated statistical areas in Australia" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Xian Li presented "Subbagging Variable Selection for Massive Data" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Xuan Liang presented "Quasi-Score Matching Estimation for Spatial Autoregressive Model with Random Weights Matrix and Regressors" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Zhi Yang Tho presented "Cokrig-and-Regress with Bootstrap for Spatially Misaligned Data" at the Australian Statistical Conference and Australian Conference on Teaching Statistics Wollongong, NSW, 10 - 15 December 2023

Phong Ngo presented

- "Lending Standards Dispersion" at the Sydney Banking and Financial Stability Conference, Sydney, December 8-9.
- A discussion of "Do Fintech Shadow Banks Compete with Technological Advantages? Evidence from Mortgage Lending" at the 2023 Business Financing and Banking Research Group Meeting, Sydney, November 8
- A discussion of "Monitoring with Small Stakes" at the Sydney Banking and Financial Stability Conference, Sydney, December 8-9.

External engagement & service

Ross Maller presented

- Asymptotics of the Allele Frequency Spectrum and the Number of Alleles (based on a paper by him and Sodi Shemehsavar) at the AustMS 2023 conference in Brisbane 5/12/2023 - 8/12/2023
- Mixture Cure Model Methodology in Survival Analysis: Some Recent Results (co-authored with Sid Resnick, Sodi Shemehsavar and Muzhi (Eric) Zhao) at the IMS-APRM 2024 conference in Melbourne 4/1/2024– 7/1/2024

Well done Luca, Emi, Terry, Francis, Alan, Insha, Nickson, Quan, Kassel, Le, Janice, Lucy, Nelson, Santiago, Sumonkanti, Xian, Xuan, Zhi Yang and Ross!

CBE Research Awards

Congratulations to **Yanrong**, **Geoff** and **Gaurav** on their CBE Research Awards!

Yanrong Yang – Prize for Excellence in Research (Level A–C)

Geoff Warren – Prize for Excellence in Research Engagement and Social Impact (Level D–E)

Gaurav Khemka – Prize for Excellence in Research Training



2024 Events - Save the dates



We will host the *ANU-FIRN Banking & Financial Stability Meeting* on **9-10 September**. The keynote speaker will be Allen Berger (University of South Carolina). Other international presenters include Gloria Yu (SMU), Adam Jorring (Boston College), Jennifer Dlugosz (Fed Reserve Board), and Brittany Lewis (Washington University St. Louis). A call for papers will be sent out to FIRN members in March. The conference chair is Phong Ngo.



We will host the *3rd Conference on Women's Safety & Financial Security* on **31 October - 1 November**. The event will feature academic talks from multiple disciplines as well as several talks from industry and advocacy groups such as the International Finance Corporation and Independent Collective of Survivors (ICOS). The conference chair is Phong Ngo.



Summer Camp

The 2023 *RSFAS Summer Research Camp* will be held at The Boathouse in Canberra on **4-5 December**. The organising committee has been formed and we are sending out speaker invitations. More information to come in the following months!

ARC Discovery Success

Congratulations to **Francis Hui** who received A\$401,287 for his project ‘Modern statistical methods for clustering community ecology data’.

The funding will allow Francis to lead a team of researchers in developing statistical methods and software for clustering community ecology data, and use them to analyse systematic survey and citizen-science program data collected along the Great Barrier Reef. By doing so, the team will address deficiencies in current statistical classification techniques for high-dimensional, multi-response data with complex relationships.



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Publications

Congratulations **Le Chang, Gaurav Khemka, Steven Roberts, Michelle Dong, Aaron Bruhn, Francis Hui, Jo Drienko, Steve Sault, Alan Welch, Yufu Tang, Geoff Warren, Luca Maestrini, Janice Scealy, and Le Zhang** on their recent publications (full details on the next page)!

A special mention to Luca for his forthcoming *Biometrika!*

Publications (in alphabetical order according to first RSFAS author)

- Asher, A., Boonen, T.J., **Chang, L., Khemka, G., and Roberts, S.P.** (2024). Heterogeneity in needs and purchases in retirement. Forthcoming in *Accounting and Finance*. <DOI: <https://doi.org/10.1111/acfi.13211> > Forthcoming. FOR code: 380102
- **Dong, M., Bruhn, A., Shang, H.L., and Hui, F.K.C.** (2023). Assessing the financial impact of climate risk stresses on life insurance portfolios. *Asia-Pacific Journal of Risk and Insurance*. <DOI: <https://doi.org/10.1515/apjri-2023-0010>>. FOR code: 350206
- **Drienko, J., and Khorsand, B.** (2023) Dividend hibernation and future earnings: When no dividend news is good news. *Journal of Corporate Finance* 83, 102502 <DOI: <https://doi.org/10.1016/j.jcorpfin.2023.102502>>.FOR code: 350202.
- **Drienko, J., Sault, S.J., and Wong, W.H.,** 2023. Do rights matter? An intraday analysis of rights issues in Australia. Forthcoming in *Accounting and Finance*. <DOI: <https://doi.org/10.1111/acfi.13180>>. FoR code: 350202.
- **Hui, F. K. C., Warton, D. I., Foster, S. D., & Haak, C. R.** (2023). Spatiotemporal joint species distribution modelling: A basis function approach. *Methods in Ecology and Evolution*, 14, 2150–2164. <DOI: <https://doi.org/10.1111/2041-210X.14184>>. FOR code: 490507
- **Nghiem, L.H., Hui, F.K.C., Muller, S. and Welsh, A.H.** (2024) Likelihood-based surrogate dimension reduction. *Statistics and Computing* 34, 51. <DOI: <https://doi.org/10.1007/s11222-023-10357-6>>. FOR code: 490509
- **Singh, A., Nitschke, C.R. Hui, F.K.C., Baker, P.J., and Kasel, S.** (2023). Soil seed banks provide a storage effect in post-logging regrowth forests of southeastern Australia. *Forest Ecology and Management*, 548, 121389.<DOI: <https://doi.org/10.1016/j.foreco.2023.121389>>. FOR code: 490501
- **Khemka, G., Tang, Y. and Warren, G.J.** (2024). Cascade Model for Australian Housing. Forthcoming in *Australian Economic Papers*. <DOI: <https://doi.org/10.1111/1467-8454.12337> >. FOR code: 380112
- **Collins, S., Maestrini, L., Hui, F.K.C., Stuart, B., Ueland, M.** (2023). The use of generalized linear mixed models to investigate post-mortem lipids in textiles. *iScience*, 26, 107371. <DOI: <https://doi.org/10.1016/j.isci.2023.107371>>. FOR code: 490501
- **Maestrini, L., Bhaskaran, A. and Wand, M. P.** (2024). Second term improvement to generalised linear mixed model asymptotics. Forthcoming in *Biometrika*. <DOI: <https://doi.org/10.1093/biomet/asad072>>. FOR code: 490509
- **Xuan, H., Maestrini, L., Chen, F. and Grazian, C.** (2024). Stochastic variational inference for GARCH models. *Statistics and Computing*, 34, 1–26. <DOI:<https://doi.org/10.1007/s11222-023-10356-7>>. FOR code: 490503
- **Hoggard, M. J., Scealy, J. L. and Delbridge, B. G.** (2023). Seismic moment tensor classification using elliptical distribution functions on the hypersphere. Forthcoming in *Geophysical Journal International*. FOR code: 370609.
- **Cao, T., Qian, X., and Zhang, L.** (2023) The price of the slow lane: Traffic congestion and stock block trading premium. Forthcoming in the *International Review of Finance*.<DOI: <https://doi.org/10.1111/irfi.12432>>. FOR code: 350202