

# FRANCIS K.C. HUI

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## PROFESSIONAL EXPERIENCE

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<b>Associate Professor</b>	2024-
Research School of Finance, Actuarial Studies & Statistics, Australian National University, Australia	
<b>Senior Lecturer</b>	2020-2023
Research School of Finance, Actuarial Studies & Statistics, Australian National University, Australia	
<b>Lecturer</b>	2019
Research School of Finance, Actuarial Studies & Statistics, Australian National University, Australia	
<b>Lecturer</b>	2017-2018
Mathematical Sciences Institute, Australian National University, Australia	
<b>Fellow</b>	2018-
The Higher Education Academy	
<b>Postdoctoral Fellow</b>	2015-2016
Mathematical Sciences Institute, Australian National University, Australia Supervisors: Prof Alan Welsh (ANU), Prof Samuel Mueller (USYD)	
<b>Research Assistant</b>	2013
Westoby Lab, Department of Biological Sciences, Macquarie University, Australia	
<b>Research Assistant</b>	2012
School of Biological, Earth and Environmental Sciences, University of New South Wales, Australia	
<b>Statistical Consultant</b>	2010
School of Medical Sciences, University of New South Wales, Australia	

## EDUCATION

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<b>PhD in Statistics</b>	2012–2014
University of New South Wales, Australia Supervisors: Prof David Warton (UNSW), Dr Scott Foster (CSIRO)	
<b>BSc (University Medal in Statistics)/BA</b>	2006–2011
University of New South Wales, Australia	

## ACHIEVEMENTS AND FUNDING (SINCE 2018)

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<b>Discovery Project DP240100143</b>	2024-
Modern statistical methods for clustering community ecology data (Joint with Dr Patricia Menendez, Prof David Warton, Dr Skipton Woolley and Dr Scott Foster)	

Australian Research Council, ~ \$401,000

**Discovery Project DP230101908** 2023-

Reliable and accurate statistical solutions for modern complex data (Joint with Prof Samuel Mueller, Prof Alan Welsh, and Prof Eva Cantoni)

Australian Research Council, ~ \$388,000

**Prize for Excellence in Research** 2022

College of Business and Economics, The Australian National University

**Christopher Heyde Medal** 2022

For research in probability theory, statistical methodology and applications  
Australian Academy of Science

**President's Award for Leadership in Statistics** 2022

Statistical Society of Australia

**Discovery Early Career Research Award DE200100435** 2020-2023

Modern statistical methods for complex multivariate longitudinal data.

Australian Research Council, ~ \$365,000

**RSFAS Cross Disciplinary Grant Program** 2019-2021

Fitting and interpreting models for discrete count data containing complete separation with applications to linguistics and ecology (Joint with Dr. Robert Clark and Dr. Wade Blanchard)

ANU, ~ \$20,000

**R Consortium Grant** 2019

Symbolic formulae for linear mixed models (Joint with Dr. Emi Tanaka and Dr. Max Kuhn)

R Consortium, ~ \$6,000

**RSFAS Cross Disciplinary Grant Program** 2018-2020

Are more funds better than one? Evidence from common stock holdings in mutual funds (Joint with Dr. Ding Ding and Dr. Tao Zou)

ANU, ~ \$20,000

**Discovery Project DP180100836** 2018-2021

Dimension reduction and model selection for statistically challenging data (Joint with Prof Samuel Mueller and Prof Alan Welsh)

Australian Research Council, ~ \$360,000

## RESEARCH OUTPUT

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### Referred Journal Articles

1. Veen, B., O'Hara, R.B., **Hui, F.K.C.**, and Hovstad, K.A. (accepted 22/11/23) Predicting niche overlap with model-based ordination. *Ecography*.
2. Nghiem, L.H., **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. (accepted 2/11/23). Likelihood-based surrogate dimension reduction. *Statistics and Computing*.
3. 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*.

- <https://doi.org/10.1515/apjri-2023-0010>
4. **Hui, F.K.C.**, Maestrini, L., and Welsh, A.H. (accepted 07/09/23). Homogeneity pursuit and variable selection in regression models for multivariate abundance data. *Biometrics*.
  5. 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.
    - <https://doi.org/10.1016/j.foreco.2023.121389>
  6. 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.
    - <https://doi.org/10.1016/j.isci.2023.107371>
  7. **Hui, F.K.C.**, Warton, D.I., Foster, S.D., and Haak, C.R. (2023) Spatio-temporal joint species distribution modelling: A basis function approach. *Methods in Ecology and Evolution*, 14, 2150-2164.
    - <https://doi.org/10.1111/2041-210X.14184>
  8. Singh, A., Kasel, S., **Hui, F.K.C.**, Trouve, R., Baker, P.J., and Nitschke, C.R. (2023). Multiple factors shape plant assemblages in regrowth montane forests in southeastern Australia. *Forests*, 14, 1166.
    - <https://doi.org/10.3390/f14061166>
  9. Zhang, X., Huang, F., **Hui, F.K.C.**, and Haberman, S. (2023). Cause-of-death mortality forecasting using adaptive penalized tensor decompositions. *Insurance: Mathematics and Economics*, 111, 193-213.
    - <https://doi.org/10.1016/j.insmatheco.2023.05.003>
  10. Clark, R. G., Blanchard, W., **Hui, F.K.C.**, Tian, R., and Woods, H. (2023). Dealing with Complete Separation and Quasi-Complete Separation in Logistic Regression for Linguistic Data. *Research Methods in Applied Linguistics*, 2, 100044.
    - <https://doi.org/10.1016/j.rmal.2023.100044>
  11. da Silva, J.P., Goncalves, D.V., Garcia-Raventos, A., Lopes-Lima, M., Varandas, S., Froufe, E., Teixeira, A., **Hui, F.K.C.**, and Filipe, A.F. (2023). Joint Species Distribution Models unveil co-occurrences between freshwater mussels and their fish hosts. *Journal of Biogeography*, 50, 730-742.
    - <https://doi.org/10.1111/jbi.14565>
  12. Tho, Z.Y., Ding, D., **Hui, F.K.C.**, Welsh, A.H., and Zou, Tao. (in-press). On the Robust Estimation of Spatial Autoregressive Models. *Econometrics and Statistics*.
    - <https://doi.org/10.1016/j.ecosta.2023.01.004>
  13. Veen, B., **Hui, F.K.C.**, Hovstad, K.A., and O'Hara, R.B. (2023) Concurrent ordination: simultaneous unconstrained and constrained latent variable modeling. *Methods in Ecology and Evolution*, 14, 683-695.

- <https://doi.org/10.1111/2041-210X.14035>
14. Ning, N., **Hui, F.K.C.**, and Welsh, A.H. (2023) A double fixed rank kriging approach to spatial regression models with covariate measurement error. *Environmetrics*, 34, e2771.
    - <https://doi.org/10.1002/env.2771>
  15. Korhonen, P., **Hui, F.K.C.**, Niku, J., and Taskinen, S. (2023) Fast and universal estimation of latent variable models using extended variational approximations. *Statistics and Computing*, 33, 26.
    - <https://doi.org/10.1007/s11222-022-10189-w>
    - ABDC Journal Ranking: A (Statistics); Scimago Journal Ranking: Quartile 1 (Statistics and Probability); H-index: 82.
  16. Kidzinski, L., **Hui, F.K.C.**, Warton, D.I., and Hastie, T. (2022) Generalized matrix factorization: efficient algorithms for fitting generalized linear latent variable models to large data arrays. *Journal of Machine Learning Research*, 23, 1–29.
    - <https://www.jmlr.org/papers/volume23/20-1104/20-1104.pdf>
  17. Dong Y., Frees, E.W., Huang, Fei, and **Hui, F.K.C.**. (2022) Multi-state modelling of customer churn. *ASTIN Bulletin - The Journal of the International Actuarial Association*, 52, 735–764.
    - <https://doi.org/10.1017/asb.2022.18>
  18. Chua, N.J.Y., **Hui, F.K.C.**, and Welsh, A.H. (accepted 14/07/22) On the efficiency of composite likelihood estimation for Gaussian spatial processes. *Statistica Sinica*.
    - <https://doi.org/10.5705/ss.202020.0311>
  19. Stoklosa, J., Blakey, R.V., and **Hui, F.K.C.** (2022). An overview of modern applications of negative binomial modelling in ecology and biodiversity. *Diversity*, 14, 320.
    - <https://doi.org/10.3390/d14050320>
  20. **Hui, F.K.C.** (2022) GEE-assisted forward regression for spatial latent variable models. *Journal of Computational and Graphical Statistics*, 31, 1013–1024.
    - <https://doi.org/10.1080/10618600.2022.2058002>
    - ABDC Journal Ranking: A\* (Statistics); Scimago Journal Ranking: Quartile 1 (Statistics and Probability); H-index: 97.
  21. Nghiem, L.H., **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. (in-press) Screening methods for linear errors-in-variables models in high dimensions. *Biometrics*.
    - <https://doi.org/10.1111/biom.13628>
  22. **Hui, F.K.C.**, and Bondell, H.D. (2022) Spatial confounding in generalized estimating equations. *The American Statistician*, 76, 238–247
    - <https://doi.org/10.1080/00031305.2021.2009372>

23. Nghiem, L.H., **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. (2022) Estimation of graphical models for skew continuous data. *Scandinavian Journal of Statistics*, 49, 1811–1841.
  - <https://doi.org/10.1111/sjos.12569>
24. **Hui, F.K.C.**, Hill, N.A., and Welsh, A.H. (2022). Assuming independence in spatial latent variable models: consequences and implications of misspecification. *Biometrics*, 78, 85-99.
  - <https://doi.org/10.1111/biom.13416>
25. **Hui, F.K.C.** and Nghiem, L.H. (2022) Sufficient dimension reduction for clustered data via finite mixture modeling. *Australian and New Zealand Journal of Statistics*, 64, 133-157 **(Special issue)**
  - <https://doi.org/10.1111/anzs.12349>
26. Popovic G. C., **Hui, F.K.C.**, and Warton, D. I. (2022). Fast model-based ordination with copulas. *Methods in Ecology and Evolution*, 13, 194-202.
  - <https://doi.org/10.1111/2041-210X.13733>
27. Nghiem, L.H., **Hui, F.K.C.**, Mueller, S., and Welsh A.H. (2022). Sparse sliced inverse regression via Cholesky matrix penalization. *Statistica Sinica*, 32, 2431-2453. **(Online special issue)**
  - [https://www3.stat.sinica.edu.tw/LatestART/SS-2020-0406\\_fp.pdf](https://www3.stat.sinica.edu.tw/LatestART/SS-2020-0406_fp.pdf)
28. Chevallier, A., Broitman, B.R., Barahona, N., Vicencio-Estay, C., **Hui, F.K.C.**, Inchausti, P., and Stotza, W.B. (2021). Diversity of small-scale fisheries in Chile: environmental patterns and biogeography can inform fisheries management *Environmental Science and Policy*, 124, 33-34.
  - <https://doi.org/10.1016/j.envsci.2021.06.002>
29. **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. (in-press). GEE-assisted variable selection for latent variable models with multivariate binary data. *Journal of the American Statistical Association*.
  - <https://doi.org/10.1080/01621459.2021.1987251>
30. Lai, H.R., Craven, D., Hall, J., **Hui, F.K.C.**, van Breugel, M. (2021). Successional syndromes of saplings in tropical secondary forests emerge from environment-dependent trait-demography relationships. *Ecology Letters*, 24, 1776-1787.
  - <https://doi.org/10.1111/ele.13784>
31. Niku, J., **Hui, F.K.C.**, Taskinen, S., and Warton D.I. (2021) Analysing Environmental-Trait Interactions in Ecological Communities with Fourth-Corner Latent Variable Models. *Environmetrics*, 32, e2683. **(Special issue)**
  - <https://doi.org/10.1002/env.2683>

32. Veen, B., **Hui, F.K.C.**, Hovstad, K.A., Solbu, E.B., and O’Hara, R.B. (2021) Model-based ordination for species with unequal niche widths. *Methods in Ecology and Evolution*, 12, 1288-1300.
- <https://doi.org/10.1111/2041-210X.13595>
33. **Hui, F.K.C.**, and Bondell, H.D. (2021) A Shared Parameter Mixture Model for Longitudinal Income Data with Missing Responses and Zero Rounding. *Australian and New Zealand Journal of Statistics*, 63, 221-240.
- <https://doi.org/10.1111/anzs.12323>
34. **Hui, F.K.C.** (2021). On the use of penalized quasi-likelihood information criterion for generalized linear mixed models. *Biometrika*, 108, 353-365.
- <https://doi.org/10.1093/biomet/asaa069>
35. **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. (2021). Random effects misspecification can have severe consequences for random effects inference in linear mixed models. *International Statistical Review*, 89, 186-206. **(Top cited articles in ISR, 2021-2022)**
- <https://doi.org/10.1111/insr.12378>
36. Renner, I.W., **Hui, F.K.C.**, and Warton, D.I. (2021). What is the effective sample size of a spatial point process? *Australian and New Zealand Journal of Statistics*. **(Special issue)**
- <https://doi.org/10.1111/anzs.12337>
37. Damgaard, C., Hansen, R.R., and **Hui, F.K.C.** (2020). Model-based ordination of pin-point cover data: effect of management on dry heathland. *Ecological Informatics*, 60, 101155.
- <https://doi.org/10.1016/j.ecoinf.2020.101155>
38. Kurosawa, T., **Hui, F.K.C.**, Welsh, A.H., Shinmura, K., and Eshima, N. On goodness-of-fit measures for Poisson regression models. (2020) *Australian and New Zealand Journal of Statistics* 62, 340–366.
- <https://doi.org/10.1111/anzs.12303>
39. **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. (2020). The LASSO on Latent Indices for Regression Modeling with Ordinal Categorical Predictors. *Computational Statistics and Data Analysis*, 149, 106951.
- <https://doi.org/10.1016/j.csda.2020.106951>
40. Wepfer, P.H., Nakajima, Y., Mitarai, S., and **Hui, F.K.C.**. (2020). Metacommunity ecology of Symbiodiniaceae hosted by the coral *Galaxea fascicularis*. *Marine Ecology – Progress Series* 633, 71–87.
- <https://doi.org/10.3354/meps13177>
41. Haak, C.R., **Hui, F.K.C.**, Cowles, G.W., and Danylchuk, A.J. (2020). Positive interspecific associations consistent with social information use shape juvenile fish assemblages. *Ecology* 101, e02920.

- <https://doi.org/10.1016/j.cstda.2020.106951>
42. Niku J., **Hui, F.K.C.**, Taskinen, S., and Warton, D.I. (2019). gllvm: Fast analysis of multivariate abundance data with generalized linear latent variable models in R. *Methods in Ecology and Evolution* 10, 2173–2182.
- <https://doi.org/10.1111/2041-210X.13303>
43. **Hui, F.K.C.**, You, C., Shang H.L., and Mueller, S. (2019). Semiparametric regression using variational approximations. *Journal of the American Statistical Association*, 114, 1765–1777.
- <https://doi.org/10.1080/01621459.2018.1518235>
44. Astarloa, A., Louzao, M., Boyra1, G., Martinez1, U., Rubio, A., Irigoien X., **Hui, F.K.C.**, Chust, G. (2019). Identifying main interactions in marine predator-prey networks of the Bay of Biscay. *ICES Journal of Marine Science*, 76, 2247-2259.
- <https://doi.org/10.1093/icesjms/fsz140>
45. Popovic G. C., Warton, D. I., Thomson , F. J., **Hui, F.K.C.**, Moles, A. T. (2019). Untangling direct species associations from indirect mediator species effects with graphical models. *Methods in Ecology and Evolution* 10, 1571–1583.
- <https://doi.org/10.1111/2041-210X.13247>
46. Niku J., Brooks, W., Herliansyah, R., **Hui, F.K.C.**, Taskinen, S., and Warton, D.I. (2019). Efficient estimation of generalized linear latent variable models. *PLoS One* 14, e0216129.
- <https://doi.org/10.1371/journal.pone.0216129>
47. Tobler, M.W., Kery, M., **Hui, F.K.C.**, Guillera-Arroita, G., Knaus, P., and Sattler, T. (2019). Joint species distribution models with species correlations and imperfect detection. *Ecology*, 100, e02754.
- <https://doi.org/10.1002/ecy.2754>
48. Norberg, A., Abrego, N., Blanchet, F. G., Adler, F. R., Anderson, B. J., Anttila, J., Araujo, M. B.; Dallas, T., Dunson, D., Elith, J.; Foster, S. D.; Fox, R., Franklin, J., Godsoe, W., Guisan, A., O’Hara, B.; Hill, N. A.; Holt , R. D., **Hui, F. K. C.**, Husby, M., Kalas, J., Lehtikainen, A., Luoto, M., Mod, H. K., Newell, G., Renner, I., Roslin, T., Soininen, J., Thuiller, W., Vanhatalo, J., Warton, D., White, M., Zimmermann, N. E., Gravel, D., Ovaskainen, O. (2019). A comprehensive evaluation of predictive performance of 33 species distribution models at species and community levels. *Ecological Monographs*, 89, e01370. **(Top cited article in Ecological Monographs 2019-2020)**
- <https://doi.org/10.1002/ecm.1370>
49. **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. (2019). Testing random effects in linear mixed models: another look at the F-test (with discussion). *Australian and New Zealand Journal of Statistics* 61, 61–84. **(Selected for inaugural ANZJS Discussion Paper)**
- <https://doi.org/10.1111/anzs.12256>

50. Foster, S., Feutry, P., Grewe, P., Berry, O., **Hui, F.K.C.**, and Davies, C. (2018). Reliably discriminating stock structure with genetic markers: Mixture models with robust and fast computation. *Molecular Ecology Resources* 18, 1310–1325.
  - <https://doi.org/10.1111/1755-0998.12920>
51. Bjork, J., **Hui, F.K.C.**, O'Hara, R., Montoya, J. (2018). Uncovering the drivers of host-associated microbiota with joint species distribution modeling. *Molecular Ecology* 27, 2714–2724.
  - <https://doi.org/10.1111/mec.14718>
52. **Hui, F.K.C.**, Tanaka, E., and Warton, D.I. (2018). Order selection and sparsity in latent variable models via the ordered factor LASSO. *Biometrics* 74, 1311–1319.
  - <https://doi.org/10.1111/biom.12888>
53. Popovic G. C., **Hui, F.K.C.**, and Warton, D.I. (2018). A general algorithm for covariance modelling of discrete data. *Journal of Multivariate Analysis* 165, 86–100.
  - <https://doi.org/10.1016/j.jmva.2017.12.002>
54. Nabe-Nielsen, J., Normand, S., **Hui, F.K.C.**, Stewart, L., Bay, C., Nabe-Nielsen, L., Schmidt, N. (2017). Plant community composition and species richness in the High Arctic tundra: from the present to the future. *Ecology and Evolution* 7, 10233–10242.
  - <https://doi.org/10.1002/ece3.3496>
55. **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. (2018). Sparse pairwise likelihood estimation for multivariate longitudinal mixed models. *Journal of the American Statistical Association*, 113, 1759–1769.
  - <https://doi.org/10.1080/01621459.2017.1371026>
  - ABDC Journal Ranking: A\* (Statistics); Scimago Journal Ranking: Quartile 1 (Statistics and Probability); H-index: 209.
56. Niku J., Warton, D.I., **Hui, F.K.C.**, and Taskinen, S. (2017). Generalized linear latent variable models for multivariate abundance data in ecology. *Journal of Agricultural, Biological, and Environmental Statistics* 22, 498–522. **(Voted best paper in JABES in 2017)**.
  - <https://doi.org/10.1007/s13253-017-0304-7>
57. Warton, D.I., and **Hui, F.K.C.** (2017). The central role of mean-variance relationships in the analysis of multivariate abundance data. *Methods in Ecology and Evolution* 8, 1408–1414.
  - <https://doi.org/10.1111/2041-210X.12843>
58. **Hui, F.K.C.**, Warton, D.I., Ormerod, J.T., Haapaniemi, V., and Taskinen, S. (2017). Variational approximations for generalized linear latent variable models. *Journal of Computational and Graphical Statistics* 26, 35–43.
  - <https://doi.org/10.1080/10618600.2016.1164708>



59. **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. Joint selection in mixed models using regularized PQL. (2017). *Journal of the American Statistical Association* 112, 1323–1333.
- <https://doi.org/10.1080/01621459.2016.1215989>
60. **Hui, F.K.C.** (2017). Model-based simultaneous clustering and ordination of multivariate abundance data in ecology. *Computational Statistics and Data Analysis* 105, 1–10.
- <https://doi.org/10.1016/j.csda.2016.07.008>
61. **Hui, F.K.C.**, Mueller, S., and Welsh, A.H. Hierarchical selection of fixed and random effects in generalized linear mixed models. (2017). *Statistica Sinica* 27, 501–518
- <https://doi.org/10.5705/ss.202015.0329>
62. Warton D.I., Blanchet, F.G., O’Hara, R., Ovaskainen, O., Taskinen, S., Walker, S.C., and **Hui, F.K.C.** (2016). Extending joint models in community ecology. *Trends in Ecology and Evolution* 31, 737–738.
- <https://doi.org/10.1016/j.tree.2016.07.007>
63. Mackenzie, B.D.E., Auld, T.D., Keith, D.A., **Hui, F.K.C.**, and Ooi, M.K.J. (2016). The effect of seasonal ambient temperatures on fire-stimulated germination of species with physiological dormancy: A case study using *Boronia* (Rutaceae) *PLoS One* 11, e0156142.
- <https://doi.org/10.1371/journal.pone.0156142>
64. **Hui, F.K.C.** (2016). `boral` – Bayesian ordination and regression analysis of multivariate abundance data in R. *Methods in Ecology and Evolution* 7, 744–750. **(Special issue)**
- <https://doi.org/10.1111/2041-210X.12514>
65. Kunstler G., Falster, D., Coomes, D.A., **Hui, F.K.C.**, Kooyman, R.M., Laughlin, D.C., Poorter, L., Vanderwel, M., Vieilledent, G., Wright, S.J., Aiba, M., Baraloto, C., Caspersen, J., Cornelissen, J.H.C., Gourlet-Fluery, S., Hanewinkel, M., Herault, B., Kattge, J., Kurokawa, H., Onoda, Y., Penuelas, J., Poorter, H., Uriarte, M., Richardson, S., Ruiz-Benito, P., Sun, I-F., Stahl, G., Swenson, N.G., Thompson, J., Westerlund, B., Wirth, C., Zavala, M.A., Zeng, H., Zimmerman, J.K., Zimmermann, N.E., and Westoby, M. (2016). Plant functional traits have globally consistent effects on competition. *Nature* 529, 204–207.
- <https://doi.org/10.1038/nature16476>
66. Letten, A, Keith, D., Tozer, M., **Hui, F.K.C.** (2015). Fine-scale hydrological niche differentiation through the lens of multi-species co-occurrence models. *Journal of Ecology* 103, 1264–1275.
- <https://doi.org/10.1111/1365-2745.12428>
67. **Hui, F.K.C.**, Warton, D.I., and Foster, S.F. (2015). Tuning parameter selection for the adaptive Lasso using ERIC. *Journal of the American Statistical Association* 110, 262–269.
- <https://doi.org/10.1080/01621459.2014.951444>

68. Warton D.I., Blanchet, F.G., O'Hara, R., Ovaskainen, O., Taskinen, S., Walker, S.C., and **Hui, F.K.C.** (2015). So many variables: Joint modeling in community ecology. *Trends in Ecology and Evolution* 30, 766–779. (ISI highly cited paper)
- <https://doi.org/10.1016/j.tree.2015.09.007>
69. **Hui, F.K.C.**, Warton, D.I., Foster, S.F. (2015). Order selection in mixture models: Complete or observed information criterion? *Biometrika*, 102, 724–730.
- <https://doi.org/10.1093/biomet/asv027>
  - ABDC Journal Ranking: A\* (Statistics); Scimago Journal Ranking: Quartile 1 (Statistics and Probability); H-index: 127.
70. **Hui, F.K.C.**, Warton, D.I., Foster, S.F. (2015). Multi-species distribution modeling with penalized mixture of regressions. *Annals of Applied Statistics* 9, 866–882.
- <https://doi.org/10.1214/15-AOAS813>
71. Dalrymple, R.L., **Hui, F.K.C.**, Moreno, H.B., Kemp, D.J., and Moles, A.T. (2014). Roses are red, violets are blue – so how much replication should you do? An assessment of variation in the colour of flowers and birds. *Biological Journal of the Linnean Society* 114, 69–81.
- <https://doi.org/10.1111/bij.12402>
72. **Hui, F.K.C.**, Taskinen, S., Pledger, S., Foster, S.F., and Warton, D.I. (2014). Model-based approaches to unconstrained ordination. *Methods in Ecology and Evolution* 6, 399–411.
- <https://doi.org/10.1111/2041-210X.12236>
73. Dunstan, P.K., Foster, S.F., **Hui, F.K.C.**, and Warton, D.I. (2013). Finite mixture of regression modelling for high-dimensional count and biomass data in ecology. *Journal of Agricultural, Biological, and Environmental Statistics* 18, 357–375.
- <https://doi.org/10.1007/s13253-013-0146-x>
74. **Hui, F.K.C.**, Warton, D.I., Foster, S.F., and Dunstan, P.K. (2013). To mix or not to mix: comparing the predictive performance of mixture models versus separate species distribution models. *Ecology* 94, 1913–1919.
- <https://doi.org/10.1890/12-1322.1>
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    - <https://doi.org/10.1016/j.jmva.2012.05.015>
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## Software

1. Hui, F.K.C. (2023). HPGEE: Homogeneity pursuit and variable selection in regression models for multivariate abundance data. <https://github.com/fhui28/HPGEE>.
2. Hui, F.K.C., and Haak, C. (2022). CBFM: Spatio-temporal joint species distribution modeling using community-level basis functions. <https://github.com/fhui28/CBFM>.
3. Liang, X., Hui, F.K.C., Tanaka, E., and Simon D. (2021). ggmatplot: Plot Columns of Two Matrices Against Each Other Using ‘ggplot2’. <https://cran.r-project.org/web/packages/ggmatplot/index.html>.
4. Popovic, G.C., Lim, M., and Hui, F.K.C. (2020). ecoCopula: Graphical Modelling and Ordination using Copulas. <https://cran.r-project.org/web/packages/ecoCopula/index.html>.
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6. Niku, J., Hui, F.K.C., Taskinen, S., and Warton, D.I. (2017). gllvm: Generalized Linear Latent Variable Models. <http://CRAN.R-project.org/package=gllvm>.
7. Hui, F.K.C. (2016). rpq1: Regularized PQL for joint selection in GLMMs. <http://CRAN.R-project.org/package=rpq1>.
8. Hui, F.K.C. (2014). boral: Bayesian ordination and regression analysis. <http://CRAN.R-project.org/package=boral>. Check out the youtube video on <https://www.youtube.com/watch?v=vyMsgyytcUI> and <https://www.youtube.com/watch?v=XmrVVMG1HXI>!

## Book Chapters

1. Tanaka, E., and Hui, F.K.C. (2019). Symbolic Formulae for Linear Mixed Models. In: Nguyen H. (eds) *Statistics and Data Science*. Communications in Computer and Information Science 1150, 3–21.

<b>Contributed talk, Session Chair, and Section panel for student talks</b> International Biometric Society Australasian Region Conference, Australia	2023
<b>Discussant</b> Joint Statistical Meeting Topic-Contributed Paper session, Canada	2023
<b>Plenary Talk</b> Australasian Applied Statistics Conference, Australia	2022
<b>Invited Talk</b> Department of Econometrics and Business Statistics, Monash University	2022
<b>Invited Talk</b> Research Center for Statistics, University of Geneva, Online	2022
<b>Invited Talk</b> ISM Symposium on Environmental Statistics, Online	2022
<b>Invited Talk</b> Department of Agriculture and Fisheries, Queensland Government, Online (Joint with Prof Alan Welsh)	2021
<b>Invited Talk</b> Latrobe University, Online	2021
<b>Invited Talk (co-presented with Dr. Fei Huang)</b> School of Risk and Actuarial Studies, UNSW Sydney, Online	2021
<b>Invited Talk</b> School of Mathematics and Statistics, University of Melbourne, Online	2021
<b>Chair</b> Australian and New Zealand Statistical Conference, Online	2021
<b>Chair</b> ANU-ISM Workshop on Data Science, Online	2021
<b>Invited Talk</b> Spatial and Temporal Statistics Symposium, Online	2021
<b>Invited Talk</b> Statistical Society of Australia Webinar Series, Online (Joint with Prof Alan Welsh)	2020
<b>Invited Talk</b> School of Mathematics and Statistics, University of New South Wales, Online	2020

## SUPERVISION

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### Staff

1. <b>Quan Vu</b>	2023-
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Postdoctoral Fellow co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University

2. **Luca Maestrini** 2022-2023  
Postdoctoral Fellow primary supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
3. **Dilinie Seimon** 2021  
Research Assistant primary supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
4. **Linh Nghiem** 2019-2021  
Postdoctoral Fellow co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University

### Higher Degree Research

1. **Nelson Chua** 2023-  
PhD primary supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
2. **Michelle Dong** 2022-  
PhD co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
3. **Pekka Korhonen** 2021-  
PhD co-supervisor, Faculty of Mathematics and Science, University of Jyvaskyla
4. **Anna Andrianatos** 2021-  
MPhil primary supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
5. **Yumo Dong** 2020-  
PhD co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
6. **Nickson Ning** 2020-  
PhD primary supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
7. **Wei Li** 2020-  
PhD co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
8. **Zhi Yang Tho** 2019-  
PhD co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
9. **Bert van der Veen** 2019-2022  
PhD co-supervisor, Department of Mathematical Sciences, Norway University of Science and Technology

10. **Ziyang Lyu** 2017-2019  
PhD co-supervisor, Mathematical Sciences Institute, Australian National University
11. **Gordana Popovic** 2015-2016  
PhD co-supervisor, School of Mathematics and Statistics, University of New South Wales

### Honours

1. **Jordan Nicholaeff** 2020  
Honours co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
2. **Xuanming Zhou** 2019-2020  
Honours co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
3. **Geoffrey Liu** 2019  
Honours co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University
4. **Nelson Chua** 2018  
Honours co-supervisor, Research School of Finance, Actuarial Studies & Statistics, Australian National University

### TEACHING HISTORY (SINCE 2019)

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**Course Convener – STAT8130 Generalised Linear Models**, Research School of Finance, Actuarial Studies & Statistics, ANU

- 2024 (9 weeks; intensive course)

**Course Convener – STAT6038 Regression Modelling**, Research School of Finance, Actuarial Studies & Statistics, ANU

- 2022 (9 weeks; intensive course)
- 2023 (9 weeks; intensive course)
- 2024 (9 weeks; intensive course)

**Course Convener – STAT6039 Principle of Mathematical Statistics**, Research School of Finance, Actuarial Studies and Statistics, ANU

- 2021 (9 weeks; intensive course)

**Course Convener – BIOL2001 Introduction to Quantitative Biology**, Research School of Biology, ANU

- 2020 (12 weeks)
- 2019 (12 weeks)

**Lecturing – MATH2307 Bioinformatics and Biological Modelling**, Mathematical Sciences Institute, ANU

- 2019 (6 weeks)

PROFESSIONAL SERVICE AND OUTREACH

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<b>Program Committee</b> ANU RSFAS Summer Camp, Australia	2023
<b>Program Committee</b> 2023 Joint Statistical Meeting, American Statistical Association	2022-2023
<b>Discussion panel</b> Australian Junior Science Olympiad Spring School	2022
<b>Associate Editor</b> Australian & New Zealand Journal of Statistics	2019-
<b>Guest Subject Matter Editor</b> Ecological Applications	2019-2020
<b>Statistical Society of Australia Canberra Branch</b> Vice President	2021-2023
President	2019-2021
Secretary	2017-2018
Interim Vice President	2016
<b>Selection Committee Membership (student related)</b> Masters and PhD top-up scholarships, Statistical Society of Australia	2022
Chris Heyde & Joe Gani Scholarship, Mathematical Sciences Institute	2021- Honours Admission,
ANU Research School of Finance, Actuarial Studies and Statistics	2019-
PhD Admission, ANU Research School of Finance, Actuarial Studies and Statistics	2019-
Johnstone Family Scholarship, ANU Mathematical Sciences Institute	2019
<b>Selection Committee Membership (staff related)</b> ANU Research School of Finance, Actuarial Studies and Statistics for Level B positions	2023
ANU Research School of Finance, Actuarial Studies and Statistics for Postdoctoral fellowship positions	2021, 2023
ANU Biological Data Science Institute for Level A positions	2020
ANU School of Demography Selection Committee for Level A positions	2018
ANU Research School of Finance, Actuarial Studies and Statistics for Level A positions	2016-2018
ANU Mathematical Sciences Institute for postdoc+toral fellow positon	2018 ANU Mathematical
Sciences Institute Liason Committee	2016-2017
<b>Presentation panel</b> STEMM Indigenous Students Workshop, Australia	2016-2018
<b>Expert Assessor</b> New Zealand Marsden Fund 2020, 2022	

Australian Research Council 2017-

**Society Membership**

American Statistical Association	2023-
Statistical Society of Australia	2012-
International Biometrics Society	2011-

**Fire Warden**

ANU Research School of Finance, Actuarial Studies and Statistics	2019-
ANU Mathematical Sciences Institute	2017-2018

RESEARCH AREAS OF INTEREST

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Alternative likelihood methods; correlated data analysis; ecological statistics; longitudinal data analysis; mixed models; model selection; semiparametric regression

REFEREES

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Upon request