David Tyler Frazier

Associate Professor, Monash University

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Current Position

Associate Professor, *Monash University*   2020

Education

University of North Carolina, Chapel Hill, Ph.D. Economics (Econometrics and Statistics)
2014

External Grants

Australian Research Council (ARC) Discovery Project (DP170100729): $391,000; Monash University: $470,522. "The Validation of Approximate Bayesian Computation: Theory and Practice," (with Gael M. Martin, Christian P. Robert and Eric Renault).   2017–2021.

ARC Discovery Early Career Researcher Award Fellowship (DE200101070): $376,496; Monash University: $314,489. "Consequences of Model Misspecification in Approximate Bayesian Computation."   2020–2022.

ARC Discovery Project (DP200101414): $393,000. "Loss-based Bayesian Prediction," (with Gael M. Martin, Rob J Hyndman and Worapree Maneesoonthorn).   2020–2022.

Awards

Monash Business School: Dean's Award for Excellence in Research by an Early Career Researcher.   2017.

Australian Centre for Excellence in Mathematics and Statistics (ACEMS): Outstanding Research Award.   2018.

Academy of Social Sciences in Australia (ASSA): Paul Bourke Award for Early Career Research Excellence.   2019.

Monash Business School: Dean's Award for Research Excellence.   2022.

Australian Academy of Science (AAS): Moran Medal for Early Career Research Excellence. 2023.

Publications and Pre-Prints

Published Articles

Frazier, David T., Christopher Drovandi, and David J. Nott. "Bayesian Synthetic Likelihood." arXiv preprint arXiv:2305.05120 (2023). Accepted: *WileyOnline StatsRef.*

Nott, David J., Christopher Drovandi, and **David T. Frazier**. "Bayesian inference for misspecified generative models." arXiv preprint arXiv:2305.08429 (2023). Accepted: *Annual Review of Statistics and Its Application.*

Martin, Gael M., **David T. Frazier**, Rubén Loaiza-Maya, and Worapree Maneesoonthorn. "Bayesian Forecasting in the 21st Century." arXiv:2212.03471 (2023). Accepted: *International Journal of Forecasting*.

Drovandi, C., Nott, D.J. and **Frazier, D.T.** "Improving the Accuracy of Marginal Approximations in Likelihood-Free Inference via Localisation." arXiv:2207.06655 (2023). Accepted: *Journal of Computational and Graphical Statistics*.

Atlanta, Chakraborty, David J. Nott, Christopher Drovandi, **David T. Frazier**, and Scott A. Sisson. "Modularized Bayesian analyses and cutting feedback in likelihood-free inference." (2023) in press: *Statistics and Computing*.

Pesonen, Henri, et al. "ABC of the Future." Section 6, "ABC forecasting with an application to optimal portfolio allocation." Gael M. Martin, **David T. Frazier**, and Worapree Maneesoonthorn. (2023) in press: *International Statistical Review*.

Martin, Gael. M, **David T. Frazier** and Christian P. Robert. "Computing Bayes: From Then 'Til Now." arXiv:2208.00646 (2023). Accepted: *Statistical Science*.

Martin, Gael. M, **David T. Frazier** and Christian P. Robert. "Approximating Bayes in the 21st Century." (2023). Accepted: *Statistical Science*. DOI: 10.1214/22-STS875.

Frazier, David T, Rubén Loaiza-Maya, and Gael M. Martin. "Variational Bayes in State Space Models: Inferential and Predictive Accuracy." in press: *Journal of Computational and Graphical Statistics* (2022).

Frazier, David T., David J. Nott, Christopher Drovandi, and Robert Kohn. "Bayesian inference using synthetic likelihood: asymptotics and adjustments." in press: *Journal of the American Statistical Association* (2022).

Drovandi, Christopher, and **Frazier, David T.** "A Comparison of Likelihood-Free Methods With and Without Summary Statistics." *Statistics and Computing* (2022) 32(3).

Petropoulos, Fotios, et al. "Forecasting: theory and practice." Section 2.4, "Bayesian Forecasting", Martin, Gael M., and **David T. Frazier**, pages 40-43. in press: *International Journal of Forecasting* (2022).

Martin, Gael M., Rubén Loaiza-Maya, **David T. Frazier**, Worapree Maneesoonthorn, and Andres Ramírez Hassan. "Optimal probabilistic forecasts: When do they work?" in press: *International Journal of Forecasting* (2022).

Drovandi, Christopher, David J. Nott, and **David T. Frazier**. Discussion on "Bayesian Restricted Likelihood Methods: Conditioning on Insufficient Statistics in Bayesian Regression" by John R. Lewis, Steven N. MacEachern, Yoonkyung Lee. *Bayesian Anal.* 1-38 (2021).

Priddle, Jacob W., Scott A. Sisson, **David T. Frazier**, and Christopher Drovandi. "Efficient Bayesian synthetic likelihood with whitening transformations." in press: *Journal of Computational and Graphical Statistics* 31(1), 50-63 (2022).

Czellar, Veronika, **David T. Frazier**, and Eric Renault. "Approximate Maximum Likelihood for Complex Structural Models." in press: *Journal of Econometrics* (2021).

Frazier, David T., and Christopher Drovandi. "Robust Approximate Bayesian Inference with Synthetic Likelihood." in press: *Journal of Computational and Graphical Statistics* (2021).

Loaiza-Maya, Ruben, Gael M. Martin and **David T. Frazier**. "Focused Bayesian Prediction." *Journal of Applied Econometrics* 36, (2021); 517-543.

Frazier, David T., and Bonsoo Koo. "Indirect Inference for Locally Stationary Models." *Journal of Econometrics* 223, no. 1 (2021): 1-27.

Frazier, David T., Christian P. Robert, and Judith Rousseau. "Model misspecification in approximate Bayesian computation: consequences and diagnostics." *JRSS:B,* 82 (2020): 421-444.

Frazier, David T., and Eric Renault. "Indirect inference with (out) constraints." *Quantitative Economics* 11, no. 1 (2020): 113-159.

Frazier, David T., Tatsushi Oka and Dan Zhu. "Indirect Inference with a Non-smooth Criterion Function." *Journal of Econometrics* 212 (2019): 623-645.

Frazier, David T., and Eric Renault. "Indirect Inference: Which Moments to Match?" *Econometrics* 7, no. 1 (2019): 1-14.

Martin, Gael M., Brendan McCabe, **David T. Frazier**, Ole Maneesoonthorn and Christian P. Robert. "Auxiliary Likelihood-Based Approximate Bayesian Computation in State Space Models." *Journal of Computational and Graphical Statistics* 28, no. 3 (2019): 508-522.

Frazier, David T., Gael M. Martin, Brendan McCabe, and Ole Maneesoonthorn. "Approximate Bayesian Forecasting." *International Journal of Forecasting* 35, no. 2 (2019): 521-539.

Frazier, David T., Gael M. Martin, Christian P. Robert and Judith Rousseau. "Asymptotic Properties of Approximate Bayesian Computation." *Biometrika* 105 (2018): 595-607.

Frazier, David T. "Simple Semiparametric Z-Estimation for Bundled Parameter Models." *Econometric Theory* 35, no. 1 (2019): 111-141.

Chaudhuri, Saraswata, **David T. Frazier** and Eric Renault. "Indirect Inference with Endogenously Missing Exogenous Variables." *Journal of Econometrics* 205 (2018): 55-75.

Frazier, David T., and Eric Renault. "Efficient Two-Step Estimation via Targeting." *Journal of Econometrics* 201 (2017): 212-227.

Frazier, David T., and Xiaochun Liu. "A New Approach to Risk-return Trade-off Dynamics via Decomposition." *Journal of Economic Dynamics and Control* 62 (2016): 43-55.

Current Revisions

Botha, Imke, Matthew P. Adams, Dang Khuong Tran, Frederick R. Bennett, **David T. Frazier**, and Christopher Drovandi. "Component-wise iterative ensemble Kalman inversion for static Bayesian models with unknown measurement error covariance." arXiv preprint arXiv:2206.02451 (2022). Revision Resubmitted: Inverse Problems.

Kelly, R.P., Nott, D.J., **Frazier, D.T.**, Warne, D.J., and Drovandi, C. "Misspecification-robust sequential neural likelihood." arXiv:2301.13368 (2023). Submitted to *NeurIPS*.

Ramírez-Hassan, Andrés, and **David T. Frazier**. "Testing model specification in approximate Bayesian computation." arXiv preprint arXiv:2210.12589 (2022). Revision Requested: *Journal of Computational and Graphical Statistics*

Frazier, David T., Christopher Drovandi and David J. Nott. "Model Misspecification in Synthetic Likelihood: Consequences and Corrections." arXiv:2104.03436 (2021). Revision Resubmitted: *Journal of the American Statistical Association*.

Frazier, David T., Eric Renault, Lina Zhang, and Xueyan Zhao. "Weak Instruments in Discrete Choice Models." arXiv:2011.06753 (2020). Revision Resubmitted: *Journal of Econometrics*.

Frazier, David T., and David J. Nott. "Cutting feedback and modularized analyses in generalized Bayesian inference." arXiv:2202.09968 (2022). Revision Resubmitted: *Bayesian Analysis*.

Zhang, Lina, **David T. Frazier**, Don S. Poskitt, and Xueyan Zhao. "Decomposing Identification Gains and Evaluating Instrument Identification Power for Partially Identified Average Treatment Effects." arXiv:2009.02642 (2020). Revision Requested: *Econometric Reviews*.

MANUSCRIPTS IN SUBMISSION

Frazier, David T., and D.J. Nott. "Guaranteed Accuracy of Semi-Modular Posteriors" arXiv:2301.10911 (2023).

Frazier, David T., Ryan Covey, Gael M. Martin, and Donald Poskitt. "Solving the Forecast Combination Puzzle." arXiv preprint arXiv:2308.05263 (2023).

Frazier, David T, Martin, Gael M., Rubén Loaiza-Maya, and Koo, Bonsoo. "Loss-Based Variational Bayes Prediction." arXiv:2104.14054 (2021).

Frazier, David T., Christopher Drovandi, and Ruben Loaiza-Maya. "Robust Approximate Bayesian Computation: An Adjustment Approach." arXiv:2008.04099 (2020).

Frazier, David T.. "Robust and Efficient Approximate Bayesian Computation: A Minimum Distance Approach." arXiv:2006.14126 (2020).

Zischke, Ryan, Gael M. Martin, **David T. Frazier**, and Donald S. Poskitt. "The Impact of Sampling Variability on Estimated Combinations of Distributional Forecasts." arXiv preprint arXiv:2206.02376 (2022).

MANUSCRIPTS IN PROGRESS

Frazier, David T., C. Drovandi, and D.J. Nott. "Better Together: pooling information in likelihood-free inference." arXiv:2212.02658 (2022).

Frazier, David T., R. Kohn, C. Drovandi, D. Gunawan. "Reliable Bayesian Inference in Misspecified Models" arXiv:2302.06031 (2023).

Refereeing Services

Annals of Statistics, Bayesian Analysis, Biometrika, Computational Statistics and Data Analysis, Econometric Reviews, Econometric Theory, Journal of the American Statistical

Association, Journal of Computational an Graphical Statistics, Journal of Applied Econometrics, Journal of Business and Economic Statistics, Journal of Econometrics, Journal of Financial Econometrics, Journal of Machine Learning Research, Journal of the Royal Statistical Society: Series A, Journal of the Royal Statistical Society: Series B, Journal of Statistical Software, Scandinavian Journal of Statistics, Statistics and Computing, Studies in Nonlinear Dynamics, R Journal.

Invited, Keynote, and Plenary Talks (Since 2017)

ACADEMIC YEAR 2023:
CompStat. CIRM. University of Warwick.

ACADEMIC YEAR 2022:
CIREQ (Montreal, Quebec). International Society for Bayesian Analysis (ISBA). University of Queensland. CIRM.

ACADEMIC YEAR 2021:
Joint Statistical Meetings (JSM). International Society for Bayesian Analysis (ISBA). Data-Centric Engineering Reading Group, at The Alan Turing Institute, London UK. RIKEN Center for Advanced Intelligence Project.

ACADEMIC YEAR 2020:
BayesComp. La Trobe (Maths and Stats).

ACADEMIC YEAR 2019:
Joint Statistical Meetings (JSM). University of Sydney.

ACADEMIC YEAR 2018:
International Society for Bayesian Analysis (ISBA). Australian Statistics Conference.

ACADEMIC YEAR 2017:
Banff International Research Station for Mathematical innovation and Discovery (BIRS). University of New South Wales (Department of Economics and Department of Statistics). Rimini Center for Economic Analysis Bayesian Econometric Workshop (RCEA). Joint Statistical Meetings (JSM), Brown University, Computational Finance and Econometrics (CFE).

External Service

Since 2018, I have been a member of the executive committee for the Bayes Section of the Statistical Society of Australia (SSA). Since 2019, I have been chair of the Bayes section of SSA and chair of the Australasian section of the International Society for Bayesian Analysis (ISBA).

PhD Students

Lina Zhang, Monash: 2017 – 2020. (Assistant Professor, University of Amsterdam, 2021)

Ryan Zischke, Monash: 2019 - 2022. (Research Scientist, Australian Bureau of Statistics)