DANIEL PETER SIMPSON

PERSONAL DETAILS

Office	Menzies Building Monash Univesity Clayton Campus	**Email**	dan.simpson@monash.edu
		Website	https://dpsimpson.github.io
		Citizenship	Australian

SKILLS AND TOOLS

Statistical modelling; computational statistics; Bayesian modelling; model checking and comparison; complex multilevel and mixed effects models; modelling non-representative and messy data; survey modelling; fast approximate Bayesian inference algorithms; building new statistical methods and reproducible statistical workflows for complex data. Advanced R; Intermediate Python; Basic C++.

EMPLOYMENT HISTORY

Professor of Statistics
Director of Analytics Engagement
Department of Econometrics and Business Statistics, Monash University, Melbourne May 2021 – Present

- Conduct novel, world-leading research, create innovative and effective large courses in statistics and analytic, supervise honours (masters in UK/US) and PhD students.
- Running the Masters of Business Analytics internship program.
- Developing faculty-level guidelines for promotion (and associated minimum standards) around academic impact activities (The second faculty in Australia to include this in our promotion criteria). My role has been to work on the standards in general, but to especially focus on open source software and large group collaboration activities.
- Mentoring faculty through the new impact promotions criteria.
- Driving and supporting industrial and governmental engagement within the department.

Associate Professor of Statistics (2020–2021)
Associate Chair for Research (2019–2020)
Assistant Professor (2017–2020)
Department of Statistical Sciences, University of Toronto Jul 2017 – Apr 2021

- Canadian Research Chair in Bayesian Spatial Modelling (2018-2022)
- Lead the redevelopment of the taught portion of PhD program. This involved completely redesigning the comprehensive/qualifying exam structure to better reflect the diversity of our department's research portfolio and shepherding those changes through the department and faculty graduate committees.
- Chair of four faculty search committees; member of six other faculty search committees.
- Collate and distribute information about grants; mentor junior faculty and assist with their grant writing; contribute to the strategic planning in the Department.

Reader in Statistics
(Lecturer (Assistant Professor) in Statistics until May 2016)
Department of Mathematical Sciences, University of Bath Aug 2015 – Jun 2017

- Placement Tutor (2016–2017). Responsible for the year long industrial placement students (109 in 2016/17) in our degree programs.
- Equality and Diversity officer (2016–2017)
- Member of the Athena SWAN Department Self Assessment Team. This committee put together successful bid for a Bronze Athena SWAN award. (2015–2016)

CRiSM Fellow Oct 2014 - Jul 2015
Department of Statistics, University of Warwick
Topic: *Spatial and computational statistics with Markovian models*

Research Scientist Aug 2012 - Sept 2014
Department of Mathematics, Norwegian University of Science and Technology, Norway
Topic: *Building better Bayesian methodology*

Postdoctoral Fellow Jan 2012 - Jul 2012
Department of Biological and Environmental Sciences, University of Helsinki, Helsinki
Topic: *Spatial models in ecology*

Postdoctoral Fellow Jan 2010 - Dec 2011
Department of Mathematics, Norwegian University of Science and Technology, Norway
Topic: *Computationally efficient modelling of spatial Gaussian processes*

Postdoctoral Fellow 2009
Department of Mathematics and Mathematical Statistics, Umeå University, Sweden
Topic: *Numerical solution of non-local partial differential equations arising in mathematical ecology*

EDUCATION

Doctor of Philosophy 2006–2009
Queensland University of Technology, Brisbane, Queensland, Australia
Title: *Krylov subspace methods for approximating functions of symmetric positive definite matrices with applications to applied statistics and models of anomalous diffusion.*
Supervisors: Ian Turner, Tony Pettitt

Bachelor of Applied Science (Mathematics – Honours 1A (top level)) Graduated 2005
Queensland University of Technology, Brisbane, Queensland, Australia

Bachelor of Applied Science (Mathematics) Graduated 2005
Queensland University of Technology, Brisbane, Queensland, Australia

OTHER INFORMATION

Open source software:

- Developer of the Stan probabilistic programming language (http://mc-stan.org/). Currently focussing on Laplace approximations and sparse matrix support. (2018–Present).
- Stan Governing Board (2018–2019, Founding member). Previously member of Stan's NUMFocus leadership body (2017–2018).
- Developer/Maintainer of the `R-INLA` software package (http://r-inla.org/, with Håvard Rue, Finn Lindgren, Andrea Riebler, and Elias Krainski) (2010–2017) and contributor to the INLABru R package (2018).

Training and mentorship:

- Five complete and one current PhD students. External examiner for five PhD theses.
- 29 short courses across 12 countries covering spatial statistics, inverse problems, statistical ecology, Stan, INLA, and data science.

Speaking

- 23 invited conference and workshop talks and 44 seminars across the world.

Writing

- Elias T. Krainski, Virgilio Gómez-Rubio, Haakon Bakka, Amanda Lenzi, Daniela Castro-Camilo, Daniel Simpson, Finn Lindgren and Håvard Rue. (2019) *Advanced Spatial Modeling with Stochastic Partial Differential Equations Using R and INLA*. CRC/Tayor and Francis Group. 2019. Online Version: https://becarioprecario.bitbucket.io/spde-gitbook/
- Two books in preparation
  - *Advanced Regression and Multilevel Models.* A revision and extension of the second half of Gelman and Hill (2006). With Andrew Gelman, Jennifer Hill, Aki Vehtari, Jonah Gabry, and Ben Goodrich. *Under Contract with Cambridge University Press. Expected Mid 2023.*
  - *Bayesian Workflow with Stan.* With Andrew Gelman, Bob Carpenter, Jonah Gabry, Mitzi Morris, Advait Rajagopal, Aki Vehtari, Lauren Kennedy, and Rob Trangucci. *Under contract with CRC Press/ Taylor & Francis Group. Expected Early 2023.*
- 38 published articles in statistics, numerical analysis, and mathematical biology journals, including 4 discussion papers (Bayesian Analysis; Journal of the Royal Statistical Society, Series A; Statistical Science); 3 articles in proceedings of machine learning conferences (AISTATS, ICML, and NeurIPS); 2 long published discussions; and 7 submitted papers.