Daniel Fryer

STATISTICS PhD | SENIOR DATA SCIENTIST | LECTURER

School of Mathematics and Statistics, La Trobe University

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PhD data scientist with a passion for statistics, data engineering and teaching.

Education

The University of Queensland *Saint Lucia, QLD, AU*
PhD | STATISTICS AND MATHEMATICS *2019–Current*
- Explaining, exploring and clustering with non-linear and complex data

La Trobe University *Melbourne, VIC, AU*
BACHELOR OF SCIENCE | MATHEMATICS AND STATISTICS WITH FIRST CLASS HONOURS (WEIGHTED AVERAGE MARK: 97) *2014–2018*
- Random fields: Long memory, and R for cosmology

Experience

Social Research Centre *Melbourne, Victoria, AU*
SENIOR DATA SCIENTIST *2021–Current*
- Machine learning, data engineering, database management

University of Auckland *Auckland, Auckland Region, NZ*
COURSE AUTHOR AND INSTRUCTOR | NEW ZEALAND SOCIAL STATISTICS NETWORK *2018–Current*
- Introduction to SQL for academics and professionals

La Trobe University *Melbourne, VIC, AU*
SESSIONAL LECTURER | DEPARTMENT OF MATHEMATICS AND STATISTICS *2018–Current*
- Master's level meta-analysis | Master's level database fundamentals

Monash University *Melbourne, Victoria, AU*
RESEARCH ASSISTANT | DEPARTMENT OF MATHEMATICS AND PHYSICS *2021–2022*
- AI for Pandemics and IDDO/ISARIC partner program

The University of Queensland *Saint Lucia, QLD, AU*
CASUAL INSTRUCTOR | DEPARTMENT OF MATHEMATICS AND PHYSICS *2020–2022*
- Master's of Data Science project support

Monash University *Melbourne, Victoria, AU*
RESEARCH ASSISTANT *2020–2021*
- Politics & International Relations

The University of Queensland *Saint Lucia, QLD, AU*
RESEARCH ASSISTANT | DEPARTMENT OF MATHEMATICS AND PHYSICS *2019–2019*
- Digital phenotyping for transdiagnostic clustering and psychiatric prognosis

La Trobe University *Melbourne, VIC, AU*
RESEARCH SOFTWARE DEVELOPER | DEPARTMENT OF MATHEMATICS AND PHYSICS *2018–2019*
- Spherical data analysis in R on the HEALPix grid

Service

Statistical Society of Australia *Belconnen, ACT, AU*
EXECUTIVE PRIVACY OFFICER | DATABASE ADMINISTRATOR *2022–Current*

Australian & New Zealand Journal of Statistics *Melbourne, Victoria, AU*
TECHNICAL SUB-EDITOR *2020–Current*

Statistical Society of Australia *Melbourne, VIC, AU*
COUNCIL MEMBER | COMMUNICATIONS OFFICER *2020–2022*

Campus Consultancy	*Melbourne, VIC, AU*
SENIOR MENTOR AND FOUNDING MEMBER	*2017–2019*
Journal of Open Source Software	*Melbourne, VIC, AU*
PEER REVIEWER (1 ARTICLE)	*2019–2019*
Research School on Statistics and Data Science	*Melbourne, VIC, AU*
PEER REVIEWER (3 ARTICLES)	*2019–2019*
Dimension Reduction and Meta Analysis Research Group	*Melbourne, VIC, AU*
MEMBER │ WEBSITE MAINTAINER	*2017–2019*
Victorian State Emergency Services	*Melbourne, VIC, AU*
EMERGENCY FIRST RESPONDER	*2017–2018*
La Trobe University Mathematics and Statistics Society	*Melbourne, VIC, AU*
VICE PRESIDENT │ NEWSLETTER EDITOR	*2016–2016*
In2Science	*Melbourne, VIC, AU*
MENTOR │ MATHEMATICS SCHOOL OUTREACH	*2015–2015*

Awards

SSA President's Award for Leadership in Statistics	*Belconnen, ACT, AU*
STATISTICAL SOCIETY OF AUSTRALIA, NA	*2022*
Future Superstars Award	*Saint Lucia, QLD, AU*
THE UNIVERSITY OF QUEENSLAND, FACULTY OF SCIENCE	*2021*
Vice Chancellor's Sessional Teaching Award	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY, NA	*2020*
Three Minute Thesis │ People's Choice	*Saint Lucia, QLD, AU*
THE UNIVERSITY OF QUEENSLAND, SCHOOL OF MATHEMATICS AND PHYSICS	*2020*
Pitching Research Competition │ Best Written and Oral Pitch University-Wide	*Saint Lucia, QLD, AU*
THE UNIVERSITY OF QUEENSLAND, BUSINESS SCHOOL	*2019*
Pro Vice Chancellor's Commendation (awarded four times)	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY, UNIVERSITY-WIDE	*2018*
David Myer's Medallion │ La Trobe's most prestigious undergraduate award	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY, COLLEGE OF SCIENCE, HEALTH AND ENGINEERING	*2018*
Department Prize in Fourth Year Statistics │ Best Performing Student	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY, DEPARTMENT OF MATHEMATICS AND STATISTICS	*2018*
Silver Scholarship │ Community Involvement and Dedication to Mathematics	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY STUDENT UNION, UNIVERSITY-WIDE	*2017*
Department Prize in Third Year Statistics │ Best Performing Student	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY, DEPARTMENT OF MATHEMATICS AND STATISTICS	*2016*
Prof CJ Eliezer Prize in Second Year Mathematics│ Best Performing Student	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY, DEPARTMENT OF MATHEMATICS AND STATISTICS	*2015*
La Trobe Award in Community Engagement │ Volunteer Efforts	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY, UNIVERSITY-WIDE	*2014*
Prof Jim Morrison Prize in Chemistry │ Best Performing Student (awarded twice)	*Melbourne, VIC, AU*
LA TROBE UNIVERSITY, SCHOOL OF MOLECULAR SCIENCES	*2014*

Publications

Pipeline

D Fryer, D Lowing, I Strümke, HD Nguyen	*hal*
MULTI-CHOICE EXPLANATIONS: A NEW COOPERATIVE GAME STRUCTURE FOR XAI	*2023*

M Terrett, D Fryer, T Doody, H Nguyen, P Castellazzi *arXiv*

SARGDV: Efficient identification of groundwater-dependent vegetation using synthetic aperture radar *2020*

HD Nguyen, D Fryer *arXiv*

A binary-response regression model based on support vector machines *2020*

Published

D Fryer, I Strümke, H Nguyen *Ieee Access*

Shapley values for feature selection: The good, the bad, and the axioms *2021*

D Fryer, M Li, A Olenko *The R Journal*

rcosmo: R Package for Analysis of Spherical, HEALPix and Cosmological Data *2020*

D Fryer, I Strümke, H Nguyen *Frontiers in Applied Mathematics and Statistics*

Shapley Value Confidence Intervals for Attributing Variance Explained *2020*

D Fryer, M Li, A Olenko *Astrophysics Source Code Library, ascl:*

rcosmo: Cosmic microwave background data analysis *2020*

D Fryer, H Nguyen, P Castellazzi *2020 IEEE Symposium Series on Computational Intelligence (SSCI), 1045-1050*

k-means on Positive Definite Matrices, and an Application to Clustering in Radar Image Sequences *2020*

D Fryer, A Olenko *Research School on Statistics and Data Science*

Spherical data handling and analysis with R package rcosmo *2019*

D Fryer, H Nguyen, P Orban *Journal of Open Source Software*

studentlife: Tidy Handling and Navigation of a Valuable Mobile-Health Dataset *2019*

HD Nguyen, D Fryer, GJ McLachlan *Journal of the Korean Statistical Society*

Order selection with confidence for finite mixture models *2023*

M Etienne, N Ettalhaoui, AG Everding, M Evers, I Fabre, M Fabre, … *Scientific data*

ISARIC-COVID-19 dataset: a prospective, standardized, global dataset of patients hospitalized with COVID-19 *2022*

M Wainstein, S MacDonald, D Fryer, K Young, V Balan, H Begum, … *PLoS medicine*

Use of an extended KDIGO definition to diagnose acute kidney injury in patients with COVID-19: A multinational study using the ISARIC–WHO clinical characterisation protocol *2022*

M Wainstein, S MacDonald, D Fryer, K Young, P Rossingnol, … *Kidney International Reports*

POS-880 ACUTE KIDNEY INJURY IN PATIENTS WITH COVID-19 USING AN EXTENDED KDIGO DEFINITION: RESULTS FROM THE ISARIC PROSPECTIVE, MULTINATIONAL, MULTICENTRE, OBSERVATIONAL STUDY *2022*

DV Fryer, I Strumke, H Nguyen *PeerJ Computer Science*

Model independent feature attributions: Shapley values that uncover non-linear dependencies *2021*

Presentations and events

IJCNN Workshop on Trustworthy and Responsible AI *Gold coast*

Multi-choice Explanations *2023*

- Talk and conference publication

IEEE Symposium Series on Computational Intelligence *Brisbane*

k-means on positive definite matrices, and an application to clustering in radar image sequences *2020*

- Talk and conference publication

Statistical Society of Australia *Melbourne*

Early Career Industry Showcase, Chief Event Organiser *2020*

- 6 panelists, 180 attendees https://vimeo.com/ssavic/20200922-showcase

Victorian Research Students Meeting in Probability and Statistics *Melbourne*

EXPLAINING, EXPLORING AND CLUSTERING WITH NON-LINEAR AND COMPLEX DATA *2020*

- Building the Melbourne research student community

UQ Research Video Pitch *St Lucia*

FORECASTING PSYCHIATRIC SYMPTOMS WITH DIGITAL PHENOTYPING *2020*

- First prize. youtu.be/h-m8QwLq29Y

UQ Three Minute Thesis Presentation *St Lucia*

MACHINE LEARNING: THE BIG BLACK BOX *2020*

- People's choice award. vimeo.com/434959101

RSSDS2019 Poster Presentation *Melbourne*

SPHERICAL DATA HANDLING AND ANALYSIS WITH R PACKAGE RCOSMO *2019*

- Poster and Springer book chapter

UseR!2018 Conference *Brisbane*

COSMIC MICROWAVE BACKGROUND DATA ANALYSIS WITH R *2018*

- R package published on CRAN. https://youtu.be/7KBsguOlEHs

Australian Mathematical Sciences Institute Summer Research School *Melbourne*

FUNCTIONALS OF LONG-RANGE DEPENDENT FIELDS AND HERMITE DISTRIBUTIONS *2017*

- Summer Research Scholarship recipient. vrs.amsi.org.au/daniel-vidali-fryer-2017/

UNSW Statistical Challenges in Astronomy *Sydney*

LIGHTING TALK: A NEW R PACKAGE FOR COSMOLOGY *2017*

- Fostering new collaborations in statistics and astronomy