

Daniel Fryer

PHD CANDIDATE | SESSIONAL LECTURER | RESEARCH SOFTWARE ENGINEER

School of Mathematics and Physics, The University of Queensland

✉ daniel@vfryer.com | 🏠 danielvfryer.com | 📺 frycast | 🐦 _frycast

I specialise in making complex models more transparent, understandable and explainable. It's fascinating that statistics is used in every industry and scientific field, but so much of it is unintuitive and misinterpreted. I've recently been publishing papers on new machine learning methods, and applying them to a number of impactful real-world problems. To make my research accessible, I write useful software packages and libraries in R, Python and Julia. I serve as a council member and Early Career and Student Statisticians' Representative at the Statistical Society of Australia.

Education

The University of Queensland

PHD | STATISTICS AND MATHEMATICS

Saint Lucia, QLD, AU

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

The University of Queensland

CASUAL INSTRUCTOR | DEPARTMENT OF MATHEMATICS AND PHYSICS

Saint Lucia, QLD, AU

2020–Current

- Master's of Data Science project support

University of Auckland

SHORT COURSE CREATOR | NEW ZEALAND SOCIAL STATISTICS NETWORK

Auckland, Auckland Region, NZ

2018–Current

- Introduction to SQL for academics and professionals

La Trobe University

SESSIONAL LECTURER | DEPARTMENT OF MATHEMATICS AND STATISTICS

Melbourne, VIC, AU

2018–Current

- Master's level meta-analysis | Master's level database fundamentals

The University of Queensland

GRADUATE RESEARCH ASSISTANT | DEPARTMENT OF MATHEMATICS AND PHYSICS

Saint Lucia, QLD, AU

2019–2019

- Digital phenotyping for transdiagnostic clustering and psychiatric prognosis

La Trobe University

RESEARCH SOFTWARE DEVELOPER | DEPARTMENT OF MATHEMATICS AND PHYSICS

Melbourne, VIC, AU

2018–2019

- Spherical data analysis in R on the HEALPix grid

Service

Statistical Society of Australia

COUNCIL MEMBER | EARLY CAREER AND STUDENT STATISTICIANS' REPRESENTATIVE

Melbourne, VIC, AU

2020–Current

Dimension Reduction and Meta Analysis Research Group

MEMBER | WEBSITE MAINTAINER

Melbourne, VIC, AU

2017–Current

Campus Consultancy

SENIOR MENTOR AND FOUNDING MEMBER

Melbourne, VIC, AU

2017–2019

Research School on Statistics and Data Science

PEER REVIEWER (3 ARTICLES)

Melbourne, VIC, AU

2019–2019

Journal of Open Source Software

PEER REVIEWER (1 ARTICLE)

Melbourne, VIC, AU

2019–2019

Victorian State Emergency Services

EMERGENCY FIRST RESPONDER

Melbourne, VIC, AU

2017–2018

La Trobe University Mathematics and Statistics Society

VICE PRESIDENT | NEWSLETTER EDITOR

Melbourne, VIC, AU

2016–2016

In2Science

MENTOR | MATHEMATICS SCHOOL OUTREACH

Melbourne, VIC, AU

2015–2015

Awards

Three Minute Thesis | People's Choice

THE UNIVERSITY OF QUEENSLAND, SCHOOL OF MATHEMATICS AND PHYSICS

Saint Lucia, QLD, AU

2020

Pitching Research Competition | Best Written and Oral Pitch University-Wide

THE UNIVERSITY OF QUEENSLAND, BUSINESS SCHOOL

Saint Lucia, QLD, AU

2019

Pro Vice Chancellor's Commendation (awarded four times)

LA TROBE UNIVERSITY, UNIVERSITY-WIDE

Melbourne, VIC, AU

2018

Department Prize in Fourth Year Statistics | Best Performing Student

LA TROBE UNIVERSITY, DEPARTMENT OF MATHEMATICS AND STATISTICS

Melbourne, VIC, AU

2018

David Myer's Medallion | La Trobe's most prestigious undergraduate award

LA TROBE UNIVERSITY, COLLEGE OF SCIENCE, HEALTH AND ENGINEERING

Melbourne, VIC, AU

2018

Silver Scholarship | Community Involvement and Dedication to Mathematics

LA TROBE UNIVERSITY STUDENT UNION, UNIVERSITY-WIDE

Melbourne, VIC, AU

2017

Department Prize in Third Year Statistics | Best Performing Student

LA TROBE UNIVERSITY, DEPARTMENT OF MATHEMATICS AND STATISTICS

Melbourne, VIC, AU

2016

Prof CJ Eliezer Prize in Second Year Mathematics | Best Performing Student

LA TROBE UNIVERSITY, DEPARTMENT OF MATHEMATICS AND STATISTICS

Melbourne, VIC, AU

2015

Prof Jim Morrison Prize in Chemistry | Best Performing Student (awarded twice)

LA TROBE UNIVERSITY, SCHOOL OF MOLECULAR SCIENCES

Melbourne, VIC, AU

2014

La Trobe Award in Community Engagement | Volunteer Efforts

LA TROBE UNIVERSITY, UNIVERSITY-WIDE

Melbourne, VIC, AU

2014

Publications

Pipeline

D Fryer, I Strumke, H Nguyen

SHAPLEY VALUE CONFIDENCE INTERVALS FOR VARIABLE SELECTION IN REGRESSION MODELS

arXiv

2020

D Fryer, H Nguyen, P Castellazzi

K-MEANS ON A LOG-CHOLESKY MANIFOLD, WITH UNSUPERVISED CLASSIFICATION OF RADAR PRODUCTS

arXiv

2020

HD Nguyen, DV Fryer

A BINARY-RESPONSE REGRESSION MODEL BASED ON SUPPORT VECTOR MACHINES

arXiv

2020

D Fryer, I Strümke, H Nguyen

EXPLAINING THE DATA OR EXPLAINING A MODEL? SHAPLEY VALUES THAT UNCOVER NON-LINEAR DEPENDENCIES

arXiv

2020

D Fryer, M Li, A Olenko

RCOSMO: R PACKAGE FOR ANALYSIS OF SPHERICAL, HEALPIX AND COSMOLOGICAL DATA

arXiv

2019

Published

D Fryer, H Nguyen, P Orban

STUDENTLIFE: TIDY HANDLING AND NAVIGATION OF A VALUABLE MOBILE-HEALTH DATASET

Journal of Open Source Software

2019

D Fryer, A Olenko

SPHERICAL DATA HANDLING AND ANALYSIS WITH R PACKAGE RCOSMO

Research School on Statistics and
Data Science

2019

Presentations

UQ Research Video Pitch

FORECASTING PSYCHIATRIC SYMPTOMS WITH DIGITAL PHENOTYPING

- First prize. youtu.be/h-m8QwLq29Y

St Lucia

2020

UQ Three Minute Thesis Presentation

MACHINE LEARNING: THE BIG BLACK BOX

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

St Lucia

2020

RSSDS2019 Poster Presentation

SPHERICAL DATA HANDLING AND ANALYSIS WITH R PACKAGE RCOSMO

- Poster and Springer book chapter

Melbourne

2019

UseR!2018 Conference

COSMIC MICROWAVE BACKGROUND DATA ANALYSIS WITH R

- R package published on CRAN. <https://youtu.be/7KBsguOIEHs>

Brisbane

2018

Australian Mathematical Sciences Institute Summer Research School

FUNCTIONALS OF LONG-RANGE DEPENDENT FIELDS AND HERMITE DISTRIBUTIONS

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

Melbourne

2017

UNSW Statistical Challenges in Astronomy

LIGHTING TALK: A NEW R PACKAGE FOR COSMOLOGY

- Fostering new collaborations in statistics and astronomy

Sydney

2017