

Nicholas Tierney

RESEARCH SOFTWARE ENGINEER

Telethon Kids Institute

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Education

Ph.D. Statistics

Brisbane, QLD, Australia

QUEENSLAND UNIVERSITY OF TECHNOLOGY

2013 - 2018

- Thesis Title: "Statistical Approaches to Revealing Structure in Complex Health Data"
- Primary Supervisor: Professor Kerrie Mengersen

Bachelor of Psychological Science (Honours)

Brisbane, QLD, Australia

UNIVERSITY OF QUEENSLAND

2008 - 2012

- Thesis Title: "How sharp is sharp? The effect of monocular texture on enhancing sharpness"
- Primary Supervisor: Dr. Philip Grove

Software

greta

CRAN

SIMPLE AND SCALABLE STATISTICAL MODELLING IN R

2021

- 0 stars
- 42,637 downloads

conmat

GitHub

CREATE CONTACT MATRICES FROM POPULATION DATA

2021

- 3 stars

brologar

GitHub

TOOLS TO BROWSE OVER LONGITUDINAL DATA GRAPHICALLY AND ANALYTICALLY. EXTENDS GGPLOT2, TSIBBLE, AND FEASTS

2019

- 99 stars
- 6,720 downloads

syn

CRAN

A ZERO DEPENDENCY R PACKAGE THAT LISTS SYNONYMS AND ANTONYMS.

2018

- 43 stars
- 12,840 downloads

visdat

CRAN

PRELIMINARY EXPLORATORY VISUALISATION OF DATA

2017

- 392 stars
- 700,897 downloads

nanier

CRAN

TIDY DATA STRUCTURES, SUMMARIES, AND VISUALISATIONS FOR MISSING DATA. EXTENDS GGPLOT2 AND DPLYR.

2017

- 588 stars
- 731,016 downloads

mmcc

GitHub

FAST AND TIDY METHODS FOR SUMMARISING MCMC CHAINS USING DATA.TABLE. EXTENDS BROOM

2016

- 20 stars

maxcovr

GitHub

TOOLS FOR LOCATION ANALYSIS AND SOLVING THE MAXIMAL COVERAGE LOCATION PROBLEM USING C++

2016

- 34 stars

broomstick

GitHub

CONVERT DECISION TREE OBJECTS INTO TIDY DATA FRAMES. EXTENDS BROOM

2016

- 29 stars

Employment

Research Software Engineer

TELETHON KIDS INSTITUTE

- Maintained {greta} and develop statistical software, develop and maintain COVID-19 modelling for Australian Government

Perth, WA, Aus

2021 - Current

Lecturer

MONASH UNIVERSITY

- Taught ETC1010, developed assessment and lectures on introduction to data analysis

Melbourne, VIC, AUS

2019 - 2020

Research Fellow

MONASH UNIVERSITY

- Created {visdat} and {naniar} packages to explore data

Melbourne, VIC, AUS

2017 - 2019

Grants

R Consortium

A UNIFIED PLATFORM FOR MISSING VALUES METHODS AND WORKFLOWS

- Developed CRAN Task view and platform for sharing missing data methods
- Funding amount: \$20,000 USD
- Co-investigators: Josse, Julie, Nathalie Vialenex, Imke Mayer

Global

2018-2019

ACEMS International Mobility Programme

MCMC DIAGNOSTICS & RESEARCH IMPACT

- Visited Johns Hopkins University and UC Berkeley to discuss MCMC diagnostics and research impact
- Funding amount: \$10,000 AU

Australia - USA

2019

Government Scholarship

AUSTRALIAN POSTGRADUATE AWARD

- Funding amount: \$98,000

Brisbane, QLD, Australia

2013-2017

Industry Scholarship

INDUSTRY DOCTORAL TRAINING CENTRE TOP UP

- Funding amount: \$40,000

Brisbane, QLD, Australia

2013-2017

Invited Academic

Prof. Kerrie Mengersen

QUEENSLAND UNIVERSITY OF TECHNOLOGY

- Visited to present invited talk on using {greta} for scalable statistical computing

Brisbane, Australia

2021

Dr. Karthik Ram

BERKELEY INSTITUTE OF DATA SCIENCE (BIDS)

- Visited annually for 1-3 weeks
- Develop best practices for publishing data sources
- Identify current technology issues in modern data science

Berkeley, CA, USA

2018 - 2020

Prof. Roger Peng

JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH

- Collaborate on understanding and measuring MCMC convergence.
- Develop MCMC diagnostics

Baltimore, MD, USA

2019

Prof. Antonietta Mira and Professor Angelo Auricchio

INTER-DISCIPLINARY INSTITUTE OF DATA SCIENCE AT UNIVERSITÀ DELLA SVIZZERA ITALIANA (USI)

- Develop methods for optimal placement of Automatic Electronic Defibrillators (AEDs) in Switzerland

Lugano, Ticino, Switzerland

2016 - 2017

Published Articles

Missing Data: Current Practice in Football Research and Recommendations for Improvement

DAVID N. BORG AND ROBERT NGUYEN AND NICHOLAS J. TIERNEY

Science and Medicine in Football

2021

Comment On: Moving Sport and Exercise Science Forward: A Call for the Adoption of More Transparent Research Practices

BORG, DAVID N. AND BON, JOSHUA J. AND SAINANI, KRISTIN L. AND BAGULEY, BRENTON J. AND TIERNEY, NICHOLAS J. AND DROVANDI, CHRISTOPHER

Sports Medicine

2020

A Bayesian Spatiotemporal Statistical Analysis of Out-of-Hospital Cardiac Arrests

PELUSO, STEFANO AND MIRA, ANTONIETTA AND RUE, HÅVARD AND TIERNEY, NICHOLAS J. AND BENVENUTI, CLAUDIO AND CIANELLA, ROBERTO AND CAPUTO, MARIA LUCE AND AURICCHIO, ANGELO

Biometrical Journal

2020

An Introduction to Software Tools, Data, and Services for Geospatial Analysis of Stroke Services

PADGHAM, MARK AND BOEING, GEOFF AND COOLEY, DAVID AND TIERNEY, NICHOLAS J. AND SUMNER, MICHAEL AND PHAN, THANH G. AND BEARE, RICHARD

Frontiers in Neurology

2019

Evaluating Health Facility Access using Bayesian Spatial Models and Location Analysis Methods

TIERNEY, NICHOLAS J. AND MIRA, ANTONIETTA AND REINHOLD, H. JOST AND ARBIA, GIUSEPPE AND CLIFFORD, SAMUEL AND AURICCHIO, ANGELO AND MOCCETTI, TIZIANO AND PELUSO, STEFANO AND MENGENSEN, KERRIE L.

PLOS ONE

2019

Novel Relocation Methods for Automatic External Defibrillator Improve Out-of-Hospital Cardiac Arrest Coverage under Limited Resources

TIERNEY, NICHOLAS J. AND REINHOLD, H. JOST AND MIRA, ANTONIETTA AND WEISER, MARTIN AND BURKART, ROMAN AND BENVENUTI, CLAUDIO AND AURICCHIO, ANGELO

Resuscitation

2018

Visdat: Visualising Whole Data Frames

TIERNEY, NICHOLAS J.

The Journal of Open Source

Software

2017

Visualisation and Statistical Modelling Techniques for the Management of Inventory Stock Levels

SWEATMAN, WINSTON L., AND MCGREE, JAMES AND CARSTENS, C. JACOBIE AND FOSTER, KYLIE J. AND LIU, SHEN AND TIERNEY, NICHOLAS J. AND TREDENICK, ELOISE AND ZAITOUNY, AYHAM

ANZIAM

2016

Using Decision Trees to Understand Structure in Missing Data

TIERNEY, NICHOLAS J. AND HARDEN, FIONA A. AND HARDEN, MAURICE J.

BMJ Open

2015

Book Chapters

Bayesian Modelling to Assist Inference on Health Outcomes in Occupational Health Surveillance

TIERNEY, NICHOLAS J. AND CLIFFORD, SAMUEL AND DROVANDI, CHRISTOPHER C. AND MENGENSEN, KERRIE L.

Case Studies in Applied Bayesian

Data Science

2020

Statistical Methods for Hospital Monitoring

MORTON, ANTHONY AND WHITBY, MICHAEL AND TIERNEY, NICHOLAS J. AND SIBANDA, NOKUTHABA AND MENGENSEN, KERRIE

Wiley StatsRef: Statistics Reference

Online

2016

Preprints

When to Impute? Imputation Before and During Cross-Validation

JAEGER, BYRON C. AND TIERNEY, NICHOLAS J. AND SIMON, NOAH R.

<http://arxiv.org/abs/2010.00718>

2020

Expanding Tidy Data Principles to Facilitate Missing Data Exploration, Visualization and Assessment of Imputations

TIERNEY, NICHOLAS J. AND COOK, DIANNE H.

<http://arxiv.org/abs/1809.02264>

2020

A Realistic Guide to Making Data Available Alongside Code to Improve Reproducibility

TIERNEY, NICHOLAS J. AND RAM, KARTHIK

<http://arxiv.org/abs/2002.11626>

2020

A Simple Guide to S3 Methods

TIERNEY, NICHOLAS J.

<http://arxiv.org/abs/1608.07161>

2016

Papers in Preparation

Brolgar: BROWSE Over Longitudinal Data Graphically and Analytically in R	<i>R Journal</i>
NICHOLAS J. TIERNEY, DIANNE COOK, TANIA PRVAN	2020
What We See in Rainbows: Do Different Colour Palettes Change Weather Maps Interpretation?	<i>TBD</i>
NICHOLAS J. TIERNEY, LAUREN KENNEDY, ADAM SPARKS	2021
The Effect of Fire Frequency on Insectivorous Bats and their Habitat in the Monsoonal Woodlands of Cape York Peninsula, Australia.	<i>Diversity and Distributions</i>
JULIE BROKEN-BROW, NICHOLAS J. TIERNEY, SANDRA PENMAN, KYLE N. ARMSTRONG, AND LUKE K.-P. LEUNG	2021

Presentations

Making Better Spaghetti (Plots)	<i>Online</i>
ACEMS (SPEAKER)	2021-11-02
Recognising Research Software in Academia	<i>Online</i>
UNSW (INVITED SEMINAR)	2021-10-29
Tangling is Easy but Untangling is Hard. Some Advice on Exploratory Data Analysis for Longitudinal Data	<i>Online</i>
JOINT STATISTICAL MEETINGS (INVITED TALK)	2021-08-09
The Use of Colour in Graphics: A Journey Through the Body & Mind to the Screen	<i>Online</i>
MONASH DATA FLUENCY (INVITED SEMINAR)	2020-06-26
Data! Data! Data!	<i>Seattle, WA, USA</i>
UNIVERSITY OF WASHINGTON (INVITED SEMINAR)	2020-02-14
Making Better Spaghetti	<i>San Francisco, CA, USA</i>
RSTUDIO::CONF2020 (INVITED SPEAKER)	2020-01-29
Exploring and Understanding the Individual Experience from Longitudinal Data, or...How to Make Better Spaghetti (Plots)	<i>Brisbane, QLD, Australia</i>
OZVIS 2019 (KEYNOTE SPEAKER)	2019-11-21
Exploring and Understanding the Individual Experience from Longitudinal Data, or...How to Make Better Spaghetti (Plots)	<i>Canberra, ACT, Australia</i>
AUSTRALIA NATIONAL UNIVERSITY (INVITED SEMINAR)	2019-11-15
Are We There Yet? Testing the Effectiveness of Graphics as MCMC Diagnostics	<i>Baltimore, MD, USA</i>
JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH (INVITED SEMINAR)	2019-01-09

Prior to 2019, I have delivered a keynote presentation in Seoul, South Korea, and invited seminars and talks in Australia, USA, Switzerland, France, Belgium, and England.

Awards

ACEMS Impact and Engagement Award	<i>Australia</i>
FOR ACTIVELY TRANSLATING RESEARCH FINDINGS TO APPLICATIONS, USE, AND UPTAKE OUTSIDE OF ACADEMIA (\$1,000)	2019
EJC Pitman Prize (Runner Up)	<i>Melbourne, VIC, Australia</i>
THE STATISTICAL SOCIETY OF AUSTRALIA	2018
Thesis nominated for University Doctoral Outstanding Thesis Award	<i>Brisbane, QLD, Australia</i>
PHD THESIS EXAMINATION	2017
Vice-Chancellor's Performance Award	<i>Brisbane, QLD, Australia</i>
INNOVATION IN TEACHING IN SEB113 (\$7,500)	2015
First Place for talk: "The Joy of Stats"	<i>Brisbane, QLD, Australia</i>
SESSIONAL TEACHING AND REFLECTION SHOWCASE (STARS)	2015

Service

I am an active member of the statistics and open source software communities. I recently joined the R Journal as an Associate Editor, served on the organising committee of UseR! 2018 in Brisbane, and was the founding and

principal organiser of the annual rOpenSci Ozunconference, from 2016 - 2018, and assistant organiser in 2019. I have been the organising chair of two university research groups, the Non-Uniform Monash Business Analytics Team (NUMBAT) group at Monash, and the Bayesian Research and Applications Group (BRAG) at Queensland University of Technology. I have been a member of the Statistical Society of Australia since 2013, serving as young statistician representative of Queensland, and assistant chair of biostatistics (2013-2016), and a general committee member of the Victoria branch (2017 - 2019).

Teaching

Lecturer

MONASH UNIVERSITY

- Developed assessment and lectures for ETC1010, introduction to data analysis

Melbourne, VIC, Australia

2019 - 2020

Teaching Assistant

QUEENSLAND UNIVERSITY OF TECHNOLOGY

- Tutor for course SEB113, an introductory course on statistics

Brisbane, QLD, Australia

2015

Lab Content Creator

QUEENSLAND UNIVERSITY OF TECHNOLOGY

- Created award-winning practical lab content for course SEB113

Brisbane, QLD, Australia

2015

Workshops

An introduction to Bayesian modelling using greta

SSA

- Teaching fundamental Bayesian statistics aimed at scientists needs
- Delivered November 2021

Global

2021

R Markdown for Scientists

RMD4SCI.NJTIERNEY.COM

- Focussing on scientists needs (workflow, citations, references)
- Delivered 6 times in Melbourne, Canberra, and Seattle

Global

2018 -

Building R Packages and using git and GitHub

ROPENSCI OZUNCONFERENCE

- Designed for absolute beginners
- Delivered 3 times, with Prof. Roger Peng, and Dr. Saras Windecker

Australia

2017 - 2019

Software Carpentry Instructor Trainer

THE CARPENTRIES

- Teaching best practices on how to teach software coding to other instructors

Global

2018 - 2019

Instructor

DATA CAMP

- Developed online course on Handling Missing Data. Produced tutorials and instructional videos

Global

2018

Missing Data Imputations

USER!2018

- Joint course with Prof. Julie Josse, covering visualising, exploring, and imputing missing data.

Brisbane, QLD, Australia

2018

Reproducible Reporting Using RMarkdown and GitHub

ANGELTR R CONFERENCE

- Course teaching basics of Rmarkdown and GitHub

Anglet, France

2017

Developing Bayesian Models for Ranking Academic Papers

BAYES ON THE BEACH

- Moderated discussion on Bayesian approaches to ranking papers to account for the number of years since publishing

Gold coast, QLD, Australia

2015