Nicholas **Tierney**

RESEARCH SOFTWARE ENGINEER

Telethon Kids Institute

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Education

Ph.D. Statistics
QUEENSLAND UNIVERSITY OF TECHNOLOGY

Brisbane, QLD, Australia
2013 - 2018

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

Bachelor of Psychological Science (Honours)
UNIVERSITY OF QUEENSLAND

Brisbane, QLD, Australia
2008 - 2012

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

Employment

Research Software Engineer
TELETHON KIDS INSTITUTE

Perth, WA, Aus
2021 - Current

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

Lecturer
MONASH UNIVERSITY

Melbourne, VIC, AUS
2019 - 2020

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

Research Fellow
MONASH UNIVERSITY

Melbourne, VIC, AUS
2017 - 2019

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

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

Common-Sense Approaches to Sharing Tabular Data Alongside Publication
NICHOLAS J. TIERNEY AND KARTHIK RAM

Patterns
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

Bayesian Modelling to Assist Inference on Health Outcomes in Occupational Health Surveillance
TIERNEY, NICHOLAS J. AND CLIFFORD, SAMUEL AND DROVANDI, CHRISTOPHER C. AND MENGERSEN, KERRIE L.

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

PLOS ONE

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 MENGERSEN, KERRIE L.

2019

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

Resuscitation

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

2018

Visdat: Visualising Whole Data Frames

The Journal of Open Source Software

TIERNEY, NICHOLAS J.

2017

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

ANZIAM

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

2016

Using Decision Trees to Understand Structure in Missing Data

BMJ Open

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

2015

Grants

R Consortium

Global

A UNIFIED PLATFORM FOR MISSING VALUES METHODS AND WORKFLOWS

2018-2019

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

ACEMS International Mobility Programme

Australia - USA

MCMC DIAGNOSTICS & RESEARCH IMPACT

2019

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

Government Scholarship

Brisbane, QLD, Australia

AUSTRALIAN POSTGRADUATE AWARD

2013-2017

- Funding amount: $98,000

Industry Scholarship

Brisbane, QLD, Australia

INDUSTRY DOCTORAL TRAINING CENTRE TOP UP

2013-2017

- Funding amount: $40,000

Invited Academic

Prof. Kerrie Mengersen

Brisbane, Australia

QUEENSLAND UNIVERSITY OF TECHNOLOGY

2021

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

Dr. Karthik Ram

Berkeley, CA, USA

BERKELEY INSTITUTE OF DATA SCIENCE (BIDS)

2018 - 2020

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

Prof. Roger Peng

Baltimore, MD, USA

JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH

2019

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

Prof. Antonietta Mira and Professor Angelo Auricchio

Lugano, Ticino, Switzerland

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

2016 - 2017

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

Software

conmat   *GitHub*

Create Contact Matrices from Population Data   *2021*

- 3 stars

yahtsee   *GitHub*

Provide tools around fitting hierarchical time series models for data commonly found in malaria. *2021*

- 2 stars

brolgar   *GitHub*

Tools to browse over longitudinal data graphically and analytically. Extends ggplot2, tsibble, and feasts *2019*

- 99 stars
- 6,785 downloads

visdat   *CRAN*

Preliminary exploratory visualisation of data   *2017*

- 393 stars
- 703,369 downloads

naniar   *CRAN*

Tidy data structures, summaries, and visualisations for missing data. Extends ggplot2 and dplyr. *2017*

- 588 stars
- 733,732 downloads

maxcovr   *GitHub*

Tools for location analysis and solving the Maximal Coverage Location Problem using C++   *2016*

- 34 stars

Presentations

Recognising Research Software in Academia   *Online*

UNSW (Invited Seminar)   *2021-10-29*

**Tangling is Easy but Untangling is Hard. Some Advice on Exploratory Data Analysis for
Longitudinal Data**   *Online*

Joint Statistical Meetings (Invited Talk)   *2021-08-09*

The Use of Colour in Graphics: A Journey Through the Body & Mind to the Screen   *Online*

Monash Data Fluency (Invited Seminar)   *2020-06-26*

Data! Data! Data!   *Seattle, WA, USA*

University of Washington (Invited Seminar)   *2020-02-14*

Making Better Spaghetti   *San Francisco, CA, USA*

rstudio::conf2020 (Invited Speaker)   *2020-01-29*

**Exploring and Understanding the Individual Experience from Longitudinal Data,
or...How to Make Better Spaghetti (Plots)**   *Brisbane, QLD, Australia*

OzVis 2019 (Keynote Speaker)   *2019-11-21*

Are We There Yet? Testing the Effectiveness of Graphics as MCMC Diagnostics   *Baltimore, MD, USA*

Johns Hopkins Bloomberg School of Public Health (Invited Seminar)   *2019-01-09*

Empowering People with Community, Software, and Peer Review   *Seoul, South Korea*

RUCK: R Users Conference Korea (Keynote Speaker)   *2018-10-23*

Find the Best Locations for Facilities using 'maxcovr'   *Brisbane, QLD, Australia*

UseR! 2018 (Speaker)   *2018-07-13*

Awards

ACEMS Impact and Engagement Award   *Australia*

For actively translating research findings to applications, use, and uptake outside of academia ($1,000) *2019*

EJC Pitman Prize (Runner Up)	*Melbourne, VIC, Australia*
THE STATISTICAL SOCIETY OF AUSTRALIA	*2018*
Thesis nominated for University Doctoral Outstanding Thesis Award	*Brisbane, QLD, Australia*
PHD THESIS EXAMINATION	*2017*
Vice-Chancellor's Performance Award	*Brisbane, QLD, Australia*
INNOVATION IN TEACHING IN SEB113 ($7,500)	*2015*
First Place for talk: "The Joy of Stats"	*Brisbane, QLD, Australia*
SESSIONAL TEACHING AND REFLECTION SHOWCASE (STARS)	*2015*

Service

I am an active member of the statistics and open source software communities. I have been an Associate Editor for the R Journal since 2021, served on the organising committee of UseR! in 2018, and was founding and principal organiser of the annual rOpenSci Ozunconference, from 2016 - 2018. 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 served with the Statistical Society of Australia since 2013, as young statistician representative of Queensland, assistant chair of biostatistics (2013-2016), and co-founded the section "Statistical Computing and Visualisation" with Di Cook in 2021.

Teaching

Lecturer	*Melbourne, VIC, Australia*
MONASH UNIVERSITY	*2019 - 2020*
• Developed assessment and lectures for ETC1010, introduction to data analysis	
Teaching Assistant	*Brisbane, QLD, Australia*
QUEENSLAND UNIVERSITY OF TECHNOLOGY	*2015*
• Tutor for course SEB113, an introductory course on statistics	
Lab Content Creator	*Brisbane, QLD, Australia*
QUEENSLAND UNIVERSITY OF TECHNOLOGY	*2015*
• Created award-winning practical lab content for course SEB113	

Workshops

An introduction to Bayesian modelling using greta	*Global*
SSA	*2021*
• Teaching fundamental Bayesian statistics aimed at scientists needs	
R Markdown for Scientists	*Global*
RMD4SCI.NJTIERNEY.COM	*2018 -*
• Focussing on scientists needs (workflow, citations, references)	
• Delivered 6 times in Melbourne, Canberra, and Seattle	
Software Carpentry Instructor Trainer	*Global*
THE CARPENTRIES	*2018 - 2019*
• Teaching best practices on how to teach software coding to other instructors	
Missing Data Imputations	*Brisbane, QLD, Australia*
USER!2018	*2018*
• Joint course with Prof. Julie Josse, covering visualising, exploring, and imputing missing data.	
Reproducible Reporting Using RMarkdown and GitHub	*Anglet, France*
ANGELTR R CONFERENCE	*2017*
• Course teaching basics of Rmarkdown and GitHub	