

Linden Parkes, Ph.D.

K99/R00 Postdoctoral Research Fellow, University of Pennsylvania

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 lindenmp

 LindenParkes

Research Interests

I am a **computational neuroscientist** working on understanding the biological basis of **psychiatric disorders**. My research uses **magnetic resonance imaging** and draws on tools from **network science** and **data science** to better understand the brain-phenotype relationships that are relevant to, and predictive of, mental illness.

Academic Positions

Postdoctoral Research Fellow

University of Pennsylvania, Department of Bioengineering

◦ Advisors: Prof. Dani S. Bassett, Associate Prof. Theodore D. Satterthwaite

Philadelphia, PA

July 2019 - present

Visiting Scholar

Donders Institute for Brain, Cognition and Behaviour

◦ Advisors: Prof. Christian Beckmann, Dr. Andre Marquand

Nijmegen, The Netherlands

Sept. 2018 - Oct. 2018

Education

Doctor of Philosophy

Monash University

◦ Thesis: Mapping brain networks in health and mental disorder with structural and functional Magnetic Resonance Imaging

◦ Advisors: Prof. Murat Yucel, Prof. Alex Fornito, Dr. Ben Fulcher

Melbourne, Australia

March 2014 - June 2019

Bachelor of Science (Honors)

Swinburne University of Technology

◦ Thesis: Mapping language processes using Magnetoencephalography.

◦ Advisor: Associate Prof. Conrad Perry

◦ Honors: First Class. Dux

Melbourne, Australia

2009 - 2013

Funding

Career Transition Awards

K99/R00 Pathway to Independence Award

National Institute of Mental Health (NIMH)

◦ Project: Developing prognostic neuroimaging biomarkers of the psychosis spectrum using network control theory

◦ \$1,424,194 USD

Sept. 2021 - 2026

Fellowships & Scholarships

Young Investigator Award

Brain & Behavior Research Foundation

◦ Project: Hybrid neurodevelopmental normative models for psychosis

◦ \$70,000 USD

Jan. 2021 - Jan. 2023

Monash University Postgraduate Publication Award

Monash University

◦ \$6,300 AUD

2018

Monash University Graduate Research Scholarship

Monash University

◦ \$20,000 AUD

2014 - 2018

Australian Postgraduate Award Research Scholarship

Australian Government

◦ \$91,000 AUD

2014 - 2018

Grants

Innovations Connections Grant

Department of Industry, Innovation and Science, Australia

2016 - 2017

- \$50,000 AUD
- Associate investigator

Travel Awards

Abstract Merit Award

2021

Organization for Human Brain Mapping

- virtual, no monetary component

Abstract Merit Award

2020

Organization for Human Brain Mapping

- \$3,000 USD

Donders-Monash Erasmus Travel Award

2018

Donders Institute for Brain, Cognition and Behaviour | Monash University

- \$3,200 AUD

Future Leaders Travel Award

2015

Monash Institute of Cognitive and Clinical Neurosciences

- \$5,000 AUD

Select Publications (9 of 31)

Citations = 750, h-index = 14, i10-index = 17

For a complete list of my publications and preprints see my [Google Scholar](#)

Postdoc papers

1. **Parkes L**, Moore TM, Calkins ME, Cieslak M, Roalf DR, Wolf DH, Gur RC, Gur RE, Satterthwaite TD & Bassett DS (2021). Network controllability in transmodal cortex predicts positive psychosis spectrum symptoms. [Biological Psychiatry](#).
2. **Parkes L**, Moore TM, Calkins ME, Cook PA, Cieslak M, Roalf DR, Wolf DH, Gur RC, Gur RE, Satterthwaite TD & Bassett DS (2021). Transdiagnostic dimensions of psychopathology explain individuals' unique deviations from normative neurodevelopment in brain structure. [Translational Psychiatry](#).
3. **Parkes L**, Satterthwaite TD & Bassett DS (2020). Towards precise resting-state fMRI biomarkers in psychiatry: synthesizing developments in transdiagnostic research, dimensional models of psychopathology, and normative neurodevelopment. [Current Opinion in Neurobiology](#).

- Invited opinion piece

PhD papers

4. **Parkes L**, Tiego J, Aquino K, Braganza L, Chamberlain SR, Fontenelle L, Harrison BJ, Lorenzetti V, Paton B, Razi A, Fornito A, & Yucel M (2019). Transdiagnostic variations in impulsivity and compulsivity in obsessive-compulsive disorder and gambling disorder correlate with effective connectivity in cortical-striatal-thalamic-cortical circuits. [NeuroImage](#).
 5. **Parkes L**, Fulcher B, Yucel M, & Fornito A (2018). An evaluation of the efficacy, reliability, and sensitivity of motion correction strategies for resting-state functional MRI. [NeuroImage](#).
- Amongst the top 20 downloaded from the journal in 2018
 - In the top 0.01% most cited publications relative to other publications in 2018 in the field of Neuroscience
 - 6. **Parkes L**, Fulcher B, Yucel M, & Fornito A (2017). Transcriptional signatures of connectomic subregions of the human striatum. [Genes, Brain and Behavior](#).
 - Amongst the top 20 downloaded from the journal in 2017
 - 7. *Prochazkova L, ***Parkes L**, Dawson A, Youssef G, Ferreira GM, Lorenzetti V, Segrave RA, Fontenelle LF, & Yucel M (2017). Unpacking the role of self-reported compulsivity and impulsivity in obsessive-compulsive disorder. [CNS spectrums](#).

*These authors contributed equally.

Undergraduate papers

8. **Parkes L**, Perry C, & Goodin P (2016). Examining the N400m in affectively negative sentences. A magnetoencephalography study. [Psychophysiology](#).

Book chapters

9. Segrave RA, Hendrikse J, & **Parkes L**, (2019). DBS, TMS and tDCS for obsessive compulsive disorder. In A

Teaching Experience

Teacher's Assistant

University of Pennsylvania, Department of Bioengineering

- Class: Network Neuroscience
- Course evaluation score: 3.57/4

Philadelphia, PA

2020

Guest Lecturer

University of Pennsylvania, Department of Bioengineering

- Class: Network Neuroscience

Philadelphia, PA

2019

Guest Lecturer

Monash University

- Class: Neuroscience Methods

Melbourne, Australia

2017 - 2018

Recitation Tutor

Swinburne University

- Class: Undergraduate Psychology

Melbourne, Australia

2014 - 2015

Recitation Tutor

Swinburne University

- Class: Undergraduate Physiology

Melbourne, Australia

2013

Research Employment

Research Assistant

Monash Biomedical Imaging

- Analysis of positron emission tomography (PET) data

Melbourne, Australia

2018

Research Engineer

Torus Games & Cogstate

- Developed gamified cognitive tests for neuroscience research

Melbourne, Australia

2016 - 2017

Magnetoencephalography Technician

Swinburne University

- Collection, preprocessing, and analysis of Magnetoencephalography (MEG) data

Melbourne, Australia

2013

Open Science Contributions

Toolkits

Network Control

https://github.com/BassettLab/control_package

 Python


Predictive Clinical Neuroscience

<https://github.com/amarquand/PCNtoolkit>

 Python

Reproducibility

https://github.com/lindenmp/neurodev_cs_predictive

 Python

- Code to reproduce results presented in [Parkes et al. \(2021\) Biological Psychiatry](#)

https://github.com/lindenmp/normative_neurodev_cs_t1

 Python

- Code to reproduce results presented in [Parkes et al. \(2021\) Translational Psychiatry](#)

<https://github.com/lindenmp/rs-fMRI>

 Matlab

- Code to reproduce results presented in [Parkes et al. \(2018\) NeuroImage](#) and [Parkes et al. \(2019\) NeuroImage](#)

Presentations

Oral

Network controllability in transmodal cortex predicts positive psychosis spectrum symptoms

2021

Organization for Human Brain Mapping

- 3-minute summary available on [YouTube](#)

Network Neuroscience DataPhilly	2021
<ul style="list-style-type: none"> Invited talk Available on YouTube 	
Average controllability better predicts cognition when compared to strength Organization for Human Brain Mapping	2020
<ul style="list-style-type: none"> Symposium 	
Psychopathology explain individual's unique deviations from normative neurodevelopment Organization for Human Brain Mapping	2020
Dimensional psychiatry in corticostriatal circuits: lessons learnt from resting-state fMRI data University of Pennsylvania	2018
<ul style="list-style-type: none"> Invited talk 	
Transdiagnostic biomarkers in psychiatry Centre of Excellence for Integrative Brain Function, Melbourne, Australia	2018
<ul style="list-style-type: none"> Invited talk 	
Confounds in rs-fMRI processing Swinburne University, Melbourne, Australia	2016
<ul style="list-style-type: none"> Invited talk 	
Transcriptional signatures of connectomic subregions of the human striatum Students of Brain Research, Melbourne, Australia	2015
Examining the N400m in affectively negative sentences. A magnetoencephalography study Australasian Cognitive Neuroscience Conference	2013
Posters (first-author)	
Network controllability in transmodal cortex predicts positive psychosis spectrum symptoms Organization for Human Brain Mapping	2021
Network controllability in transmodal cortex predicts positive psychosis spectrum symptoms Society of Biological Psychiatry	2021
Psychopathology explain individual's unique deviations from normative neurodevelopment Organization for Human Brain Mapping	2020
Impulsivity and compulsivity correlate with effective connectivity in corticostriatal circuits Organization for Human Brain Mapping	2019
Impulsivity and compulsivity correlate with effective connectivity in corticostriatal circuits Australasian Cognitive Neuroscience Conference	2018
Evaluating the efficacy and sensitivity of motion correction strategies for rs-fMRI Organization for Human Brain Mapping	2018
Efficacy, reliability, and sensitivity of motion correction strategies for resting-state functional MRI IEEE International Symposium on Biomedical Imaging	2017
Efficacy, reliability, and sensitivity of motion correction strategies for resting-state functional MRI Students of Brain Research	2017

Academic Service

Journal Peer Review	
<ul style="list-style-type: none"> NeuroImage, Human Brain Mapping, Network Neuroscience, Scientific Reports, Biological Psychiatry, Psychological Medicine, Neuropsychologia, Developmental Cognitive Neuroscience, NeuroImage: Clinical, Psychiatry Research: Neuroimaging, Harvard Review of Psychiatry, International Gambling Studies, Journal of Cerebral Blood Flow & Metabolism 	
Committees	
Organization for Human Brain Mapping, Student and Postdoc Special Interest Group Treasurer	2019 - 2021
Australasian Cognitive Neuroscience Society, Early Career Researchers Committee Committee Member	2017

Australasian Cognitive Neuroscience Society, Executive Committee ECR Representative	2017
Students of Brain Research Treasurer	2016
Supervision & Mentorship	
Ashlea Segal Graduate Student, Monash University	2018 - present
Tayla Currie Undergraduate Honors Student, Monash University	2018
John Fallon Undergraduate Honors Student, Monash University	2017
Luisa Prochazkova International Visiting Scholar, Monash University	2016
Kristina Sabaroedin Undergraduate Honors Student, Monash University	2016
Lauren Den Ouden Undergraduate Honors Student, Monash University	2016
Stuart Oldham Undergraduate Honors Student, Monash University	2016
Danielle Amiet Undergraduate Honors Student, Monash University	2016
Outreach & Community Engagement	
Neuroimaging Best Practices Beyond Open Science Organization for Human Brain Mapping, Student and Postdoc Special Interest Group ○ Moderator	2021
Link with Mentors Organization for Human Brain Mapping, Student and Postdoc Special Interest Group ○ Moderator	2021
International Mentoring Programme Organization for Human Brain Mapping, Student and Postdoc Special Interest Group ○ Mentor	2021
Network Control Theory for Neuroscientists, Education Workshop Organization for Human Brain Mapping ○ Organizer, presenter	2020
Link with Mentors Organization for Human Brain Mapping, Student and Postdoc Special Interest Group ○ Moderator	2020
NeuroDay Methodist Ladies' College, Melbourne, Australia ○ Organizer, presenter	2018
BMH Mentor Forum Brain & Mental Health Research Hub, Monash University ○ Organizer, mentor	2018
MBI Student Forum Monash Biomedical Imaging, Monash University ○ Organizer, mentor, presenter	2014 - 2015