

Linden Parkes, Ph.D.

K99/R00 Postdoctoral Research Fellow, University of Pennsylvania

 lindenparkes.com

 lindenmp@seas.upenn.edu

 lindenmp

 LindenParkes

Research Interests

I am a **computational neuroscientist** seeking to uncover the pathways that track the emergence of psychopathology. I approach this goal from a neurobiological perspective by studying how complex neural systems shape behavior and cognition, and how dysfunction in these systems predicts psychopathology.

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, Neuroscience & Psychiatry

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 (with Honors), Psychology/Psychophysiology

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 = 835, h-index = 15, i10-index = 18

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**, Tiegio 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](#).

- [The 4th most cited paper in NeuroImage since 2018](#)

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 Transdiagnostic Approach to Obsessions, Compulsions and Related Phenomena*. Cambridge University Press

Teaching Experience

Teacher's Assistant <i>University of Pennsylvania, Department of Bioengineering</i> <ul style="list-style-type: none">Class: Network NeuroscienceCourse evaluation score: 3.57/4	Philadelphia, PA 2020
Guest Lecturer <i>University of Pennsylvania, Department of Bioengineering</i> <ul style="list-style-type: none">Class: Network Neuroscience	Philadelphia, PA 2019
Guest Lecturer <i>Monash University</i> <ul style="list-style-type: none">Class: Neuroscience Methods	Melbourne, Australia 2017 - 2018
Recitation Tutor <i>Swinburne University</i> <ul style="list-style-type: none">Class: Undergraduate Psychology	Melbourne, Australia 2014 - 2015
Recitation Tutor <i>Swinburne University</i> <ul style="list-style-type: none">Class: Undergraduate Physiology	Melbourne, Australia 2013

Research Employment




Research Assistant <i>Monash Biomedical Imaging</i> <ul style="list-style-type: none">Analysis of positron emission tomography (PET) data	Melbourne, Australia 2018
Research Engineer <i>Torus Games & Cogstate</i> <ul style="list-style-type: none">Developed gamified cognitive tests for neuroscience research	Melbourne, Australia 2016 - 2017
Magnetoencephalography Technician <i>Swinburne University</i> <ul style="list-style-type: none">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 <ul style="list-style-type: none">Code to reproduce results presented in Parkes et al. (2021) Biological Psychiatry	 Python
https://github.com/lindenmp/normative_neurodev_cs_t1 <ul style="list-style-type: none">Code to reproduce results presented in Parkes et al. (2021) Translational Psychiatry	 Python
https://github.com/lindenmp/rs-fMRI <ul style="list-style-type: none">Code to reproduce results presented in Parkes et al. (2018) NeuroImage and Parkes et al. (2019) NeuroImage	 Matlab

Presentations

Oral	
Review and comparison of retrospective motion correction strategies <i>Quality Conversations webinar series</i> by Dr. Pradeep Raamana <ul style="list-style-type: none">Invited talkAvailable on YouTube	2021
Network controllability in transmodal cortex predicts positive psychosis spectrum symptoms Organization for Human Brain Mapping	2021

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

Network Neuroscience

2021

DataPhilly

- Invited talk
- Available on [YouTube](#)

Average controllability better predicts cognition when compared to strength

2020

Organization for Human Brain Mapping

- Symposium

Psychopathology explain individual's unique deviations from normative neurodevelopment

2020

Organization for Human Brain Mapping

Dimensional psychiatry in corticostriatal circuits: lessons learnt from resting-state fMRI data

2018

University of Pennsylvania

- Invited talk

Transdiagnostic biomarkers in psychiatry

2018

Centre of Excellence for Integrative Brain Function, Melbourne, Australia

- Invited talk

Confounds in rs-fMRI processing

2016

Swinburne University, Melbourne, Australia

- Invited talk

Transcriptional signatures of connectomic subregions of the human striatum

2015

Students of Brain Research, Melbourne, Australia

Examining the N400m in affectively negative sentences. A magnetoencephalography study

2013

Australasian Cognitive Neuroscience Conference

Posters (first-author)

Network controllability in transmodal cortex predicts positive psychosis spectrum symptoms

2021

Organization for Human Brain Mapping

Network controllability in transmodal cortex predicts positive psychosis spectrum symptoms

2021

Society of Biological Psychiatry

Psychopathology explain individual's unique deviations from normative neurodevelopment

2020

Organization for Human Brain Mapping

Impulsivity and compulsivity correlate with effective connectivity in corticostriatal circuits

2019

Organization for Human Brain Mapping

Impulsivity and compulsivity correlate with effective connectivity in corticostriatal circuits

2018

Australasian Cognitive Neuroscience Conference

Evaluating the efficacy and sensitivity of motion correction strategies for rs-fMRI

2018

Organization for Human Brain Mapping

Efficacy, reliability, and sensitivity of motion correction strategies for resting-state functional MRI

2017

IEEE International Symposium on Biomedical Imaging

Efficacy, reliability, and sensitivity of motion correction strategies for resting-state functional MRI

2017

Students of Brain Research

Academic Service

Journal Peer Review

- Nature Protocols, 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, Open Science Special Interest Group

2022 - 2023

Treasurer

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