# Linden Parkes, Ph.D.

Assistant Professor, Rutgers University

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## 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

**Assistant Professor** — **Piscataway, NJ**
*Rutgers University, Department of Psychiatry* — *August 2023 - present*

**Postdoctoral Research Fellow** — **Philadelphia, PA**
*University of Pennsylvania, Department of Bioengineering* — *July 2019 - June 2023*
- Advisors: Prof. Dani S. Bassett, Associate Prof. Theodore D. Satterthwaite

**Visiting Scholar** — **Nijmegen, The Netherlands**
*Donders Institute for Brain, Cognition and Behaviour* — *Sept. 2018 - Oct. 2018*
- Advisors: Prof. Christian Beckmann, Dr. Andre Marquand

## Education

**Doctor of Philosophy, Neuroscience & Psychiatry** — **Melbourne, Australia**
*Monash University* — *March 2014 - June 2019*
- 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

**Bachelor of Science (with Honors), Psychology/Psychophysiology** — **Melbourne, Australia**
*Swinburne University of Technology* — *2009 - 2013*
- Thesis: Mapping language processes using Magnetoencephalography.
- Advisor: Associate Prof. Conrad Perry
- Honors: First Class. Dux

## Funding

### Grants

**K99/R00 Pathway to Independence Award** — *Sept. 2021 - 2026*
National Institute of Mental Health (NIMH)
- Project: Developing prognostic neuroimaging biomarkers of the psychosis spectrum using network control theory

**Young Investigator Award** — *Jan. 2021 - Jan. 2023*
Brain & Behavior Research Foundation
- Project: Hybrid neurodevelopmental normative models for psychosis

**Innovations Connections Grant** — *2016 - 2017*
Department of Industry, Innovation and Science, Australia

### Fellowships & Scholarships

**Monash University Postgraduade Publication Award** — *2018*
Monash University

**Monash University Graduate Research Scholarship** — *2014 - 2018*
Monash University

**Australian Postgraduate Award Research Scholarship** — *2014 - 2018*
Australian Government

### Travel Awards

**Domestic Travel Fellowship Award** — *2022*
Society of Biological Psychiatry

**Abstract Merit Award** *2021*
Organization for Human Brain Mapping

**Abstract Merit Award** *2020*
Organization for Human Brain Mapping

**Donders-Monash Erasmus Travel Award** *2018*
Donders Institute for Brain, Cognition and Behaviour | Monash University

**Future Leaders Travel Award** *2015*
Monash Institute of Cognitive and Clinical Neurosciences

## Select Publications

For a full list of my publications, see my *Google Scholar*.

### First author

**Parkes L**, & Bassett DS (2023). Tracking Disordered Brain Dynamics in Psychiatry. *Biological Psychiatry*, 94 (7), 528-530.

**Parkes L**, Kim JZ, ..., Satterthwaite TD, & Bassett DS (2023). Using network control theory to study the dynamics of the structural connectome. *bioRxiv*.

**Parkes L**, ..., Satterthwaite TD & Bassett DS (2021). Network controllability in transmodal cortex predicts positive psychosis spectrum symptoms. *Biological Psychiatry*, 90 (6), 409-418.

**Parkes L**, ..., Satterthwaite TD & Bassett DS (2021). Transdiagnostic dimensions of psychopathology explain individuals' unique deviations from normative neurodevelopment in brain structure. *Translational Psychiatry*, 11 (1), 1-13.

**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*, 65, 120-128.

**Parkes L**, ..., 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*, 202, 116070.

**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*, 171, 415-436.

*Prochazkova L, ***Parkes L**, ..., Fontenelle LF, & Yucel M (2018). Unpacking the role of self-reported compulsivity and impulsivity in obsessive-compulsive disorder. *CNS spectrums*, 23 (1), 51-58.

**These authors contributed equally*

**Parkes L**, Fulcher B, Yucel M, & Fornito A (2017). Transcriptional signatures of connectomic subregions of the human striatum. *Genes, Brain and Behavior*, 16 (7), 647-663.

**Parkes L**, Perry C, & Goodin P (2016). Examining the N400m in affectively negative sentences. A magnetoencephalography study. *Psychophysiology*, 53 (5), 689-704.

### Senior author

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*, 255-278. Cambridge University Press.

### Consortium papers

Richie-Halford A, Cieslak M, Ai L, Caffarra S, Covitz S, Franco AR, Karipidis II, Kruper J, Milham M, Avelar-Pereira B, Roy E, Sydnor VJ, Yeatman J, **Fibr Community Science Consortium**, Satterthwaite TD, & Rokem A (2022). An open, analysis-ready, and quality controlled resource for pediatric brain white-matter research. *bioRxiv*.

## Teaching Experience

**Teacher's Assistant** **Philadelphia, PA**
*University of Pennsylvania, Department of Bioengineering* *2020*
- Class: Network Neuroscience
- Course evaluation score: 3.57/4

**Guest Lecturer** **Philadelphia, PA**
*University of Pennsylvania, Department of Bioengineering* *2019*
- Class: Network Neuroscience

**Guest Lecturer** — **Melbourne, Australia**
*Monash University* — *2017 - 2018*
- Class: Neuroscience Methods

**Recitation Tutor** — **Melbourne, Australia**
*Swinburne University* — *2014 - 2015*
- Class: Undergraduate Psychology

**Recitation Tutor** — **Melbourne, Australia**
*Swinburne University* — *2013*
- Class: Undergraduate Physiology

## Research Employment

**Research Assisstant** — **Melbourne, Australia**
*Monash Biomedical Imaging* — *2018*
- Analysis of positron emission tomography (PET) data

**Research Engineer** — **Melbourne, Australia**
*Torus Games & Cogstate* — *2016 - 2017*
- Developed gamified cognitive tests for neuroscience research

**Magnetoencephalography Technician** — **Melbourne, Australia**
*Swinburne Univerisity* — *2013*
- Collection, preprocessing, and analysis of Magnetoencephalography (MEG) data

## Open Science Contributions

### Toolkits

**Network Control** — *Python*
`https://github.com/BassettLab/control_package`

### Reproducibility

**`https://github.com/lindenmp/nct_hierarchy`** — *Python*
- Code to reproduce results presented in *Parkes et al. (2022) Science Advances*

**`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

### Invited Lectures & Presentations

**Association for Psychological Science, Chicago, IL** — *May 2022*
Available on YouTube

**Feindel Virtual Brain and Mind Lecture Series, McGill University, Canada** — *May 2022*

**Mount Sinai, New York City, NY** — *Mar. 2022*

**Vanderbilt University, Nashville, TN** — *Mar. 2022*

**Rutgers University, New Brunswick, NJ** — *Mar. 2022*

**University of Manchester, Manchester, United Kingdom** — *Feb. 2022*

**The Douglas Research Centre, Montreal, Canada** — *Feb. 2022*

**University of California, Los Angeles, CA** — *Feb. 2022*

**Georgia State University, Atlanta, GA** — *Nov. 2021*

**University of Pittsburgh, Pittsburgh, PA** — *Oct. 2021*
Available on YouTube

**Organization for Human Brain Mapping, Oral Presentation** — *Jun. 2021*

**DataPhilly, Philadelphia, PA** *Mar. 2021*
Available on YouTube

**Organization for Human Brain Mapping, Symposium** *Jun. 2020*

**Organization for Human Brain Mapping, Oral Presentation** *Jun. 2020*

**University of Pennsylvania, Philadelphia, PA** *Sep. 2018*

**Centre of Excellence for Integrative Brain Function, Melbourne, Australia** *Mar. 2018*

**Swinburne Univerisity, Melbourne, Australia** *Jun. 2016*

**Students of Brain Research, Melbourne, Australia** *Jun. 2015*

**Australasian Cognitive Neuroscience Conference, Melbourne, Australia** *Jun. 2013*

## Academic Service

### Journal Peer Review

- Biological Psychiatry, Communications Biology, Current Opinion in Behavioral Sciences, Developmental Cognitive Neuroscience, Harvard Review of Psychiatry, Human Brain Mapping, Imaging Neuroscience, International Gambling Studies, Journal of Cerebral Blood Flow & Metabolism, Journal of the American Academy of Child and Adolescent Psychiatry, Nature Protocols, Nature, Network Neuroscience, NeuroImage, NeuroImage: Clinical, Neuropsychologia, Proceedings of the National Academy of Sciences of the United States of America, Progress in Neuropsychopharmacology & Biological Psychiatry, Psychiatry Research: Neuroimaging, Psychological Medicine, Science Advances, Scientific Reports

### 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** *2019 - 2021*
Treasurer

**Australasian Cognitive Neuroscience Society, Early Career Researchers Committee** *2017*
Committee Member

**Australasian Cognitive Neuroscience Society, Executive Committee** *2017*
ECR Representative

**Students of Brain Research** *2016*
Treasurer

### Supervision & Mentorship

**Ahmad Beyh** *2023 - present*
Postdoctoral Scholar, Rutgers University

**Ashlea Segal** *2023 - present*
Postdoctoral Scholar, Yale University

**Ashlea Segal** *2018 - 2022*
Graduate Student, Monash University

**Tayla Currie** *2018*
Undergraduate Honors Student, Monash University

**John Fallon** *2017*
Undergraduate Honors Student, Monash University

**Luisa Prochazkova** *2016*
International Visiting Scholar, Monash University

**Kristina Sabaroedin** *2016*
Undergraduate Honors Student, Monash University

**Lauren Den Ouden** *2016*
Undergraduate Honors Student, Monash University

**Stuart Oldham** *2016*
Undergraduate Honors Student, Monash University

**Danielle Amiet** *2016*

Undergraduate Honors Student, Monash University

## Outreach & Community Engagement

**International Mentoring Programme** *2021-2024*
Organization for Human Brain Mapping, Student and Postdoc Special Interest Group

- Mentor

**Neuroimaging Best Practices Beyond Open Science** *2021*
Organization for Human Brain Mapping, Student and Postdoc Special Interest Group

- Moderator

**Link with Mentors** *2021*
Organization for Human Brain Mapping, Student and Postdoc Special Interest Group

- Moderator

**Network Control Theory for Neuroscientists, Education Workshop** *2020*
Organization for Human Brain Mapping

- Organizer, presenter

**Link with Mentors** *2020*
Organization for Human Brain Mapping, Student and Postdoc Special Interest Group

- Moderator

**NeuroDay** *2018*
Methodist Ladies' College, Melbourne, Australia

- Organizer, presenter

**BMH Mentor Forum** *2018*
Brain & Mental Health Research Hub, Monash University

- Organizer, mentor

**MBI Student Forum** *2014 - 2015*
Monash Biomedical Imaging, Monash University

- Organizer, mentor, presenter