Linden Parkes, Ph.D.

Email: lindenparkes@gmail.com
Publication list: Linden Parkes

GitHub: lindenmp
Twitter: @LindenParkes
LinkedIn: Linden Parkes

Education

- **Monash University** — Melbourne, Australia
  Doctor of Philosophy (Neuroscience, Psychology, Psychiatry) — *2014 – June 2019*
- **Swinburne University of Technology** — Melbourne, Australia
  Bachelor of Science (Psychology, Psychophysiology) — *2009 – 2013*
  Honours (capstone research project), First Class, Dux (top of the class)

Experience

- **The University of Pennsylvania** — Philadelphia, PA
  Postdoctoral Research Fellow — *March 2019 - Present*
  - **Predictive Modeling**: Successfully detected developmental brain abnormalities associated with psychiatric disorders
- **The University of Pennsylvania** — Philadelphia, PA
  Teaching Assistant — *Fall 2019*
  - **Guest Lecturer**: Preparation and delivery of teaching material for a class on Network Neuroscience
- **Donders Institute for Brain, Cognition and Behaviour** — Nijmegen, The Netherlands
  Visiting Research Fellow — *Sept. 2018 - Oct. 2018*
  - **Predictive Modeling**: Contributed to development of Python library used by institute and collaborators
- **Monash Biomedical Imaging** — Melbourne, Australia
  Research Assistant — *Jan. 2018 - Jan. 2019*
  - **PET Processing and Analysis**: Assisted the development and testing of a continuous infusion PET protocol
- **Torus Games** — Melbourne, Australia
  Research Fellow — *March 2016 - Oct. 2017*
  - **Consulting**: Communicated research goals to developers at Torus games and ensured all stakeholders interests were represented

Scientific Impact

- **Successfully detected developmental brain abnormalities associated with psychiatric disorders**: Predictive modeling project in brain development throughout childhood and adolescence. All **Python** code written in **Jupyter notebooks** publicly available on Github
- **Discovered the genetic signatures of the human brain**: Machine learning on the intersection of human brain imaging and genetics. Provided novel framework for how to bring together different neuroimaging datasets through machine learning. Paper ranked in the **top 20 downloaded** from the journal in 2017
- **Engineered pipelines for processing brain imaging datasets**: Pipeline generated derivatives needed for subsequent analyses, including quality control reports. I deployed pipeline on multiple open-access datasets using **high-performance computing** and provided concrete recommendations for the field. Paper ranked by the journal in the **top 20 downloaded** and in the **top 0.01% most cited** publications in 2018 in the field of Neuroscience. All code publicly available on Github
- **Delivered data-driven brain stimulation targets for psychiatric disorders**: Used generative models to characterize the dysfunctional information flow in brain circuits in order to pinpoint locations for brain stimulation in patient groups. Paper published in leading **peer-reviewed journal**. All code publicly available on Github

Skills

- **Neuroimaging (analysis)**: Magnetic Resonance Imaging (Structural, Diffusion, Functional), Positron Emission Tomography, Magnetoencephalography
- **Neuroscience Tools**: SPM, FSL, MRtrix3, AFNI, ANTs
- **Machine Learning**: Classification (Decision Trees, SVC), Unsupervised Clustering, Regression (Linear, GPR, GAM, Regularization), Cross-validation, Model Scoring, Parameter Tuning, Feature Selection & Standardization, Dimensionality Reduction
- **Statistics**: Experimental Design, Null Hypothesis Testing, Analysis of Variance, Data Resampling (permutation, bootstrapping), Dependent Data (e.g., repeated measures), Bayesian Inference, Time Series Analysis, Network Science
- **Coding**: Python (Pandas, NumPy, SciPy, Scikit-Learn, Pingouin, Statsmodels, Matplotlib, Seaborn, pyGAM), Matlab, Shell, Git, Linux OS, LaTeX; Familiar with: SQL

Funding & Awards

- **Monash University Postgraduade 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*
- **Innovations Connections Grant** — Department of Industry, Innovation and Science, Australia
  $50,000 AUD (associate investigator) — *2016*
- **Donders-Monash Erasmus Travel Award** — Donders Institute for Brain, Cognition and Behaviour
  $3,200 AUD — *2018*
- **Future Leaders Travel Award** — Monash Institute of Cognitive and Clinical Neurosciences
  $5,000 AUD — *2015*

Invited Talks

Dimensional psychiatry in corticostriatal circuits, The University of Pennsylvania, *2018*

Transdiagnostic biomarkers in psychiatry, Centre of Excellence for Integrative Brain Function, Melbourne, Australia, *2018*

Confounds in rs-fMRI processing, Swinburne Univerisity, Melbourne, Australia, *2016*

Conference Oral Presentations

Transcriptional signatures of connectomic subregions of the human striatum, Students of Brain Research, *2015*

Examining the N400m in affectively negative sentences, Australasian Cognitive Neuroscience Conference, *2013*

Conference Poster Presentations

Impulsivity and compulsivity correlate with effective connectivity in corticostriatal circuits, Organization of 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 of Human Brain Mapping, *2018*

An evaluation of the efficacy, reliability, and sensitivity of motion correction strategies for resting-state functional MRI, IEEE International Symposium on Biomedical Imaging, *2017*

Supervision & Mentorship

1 * PhD Student — 6 * Undergraduate Students — 1 * Visiting Scholar

Peer Review

NeuroImage — Network Neuroscience — Psychiatry Research: Neuroimaging — Scientific Reports

Committees

Treasurer, Organization of Human Brain Mapping, Student and Postdoc Special Interest Group, *2019*

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

Member, Australasian Cognitive Neuroscience Society, Executive Committee, *2017*

Treasurer, Students of Brain Research, *2016*

Outreach & Community Engagement

Co-organiser, NeuroDay, Methodist Ladies' College, Melbourne, Australia, *2018*

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

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