Linden Parkes, Ph.D.

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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
- **Torus Games** — Melbourne, Australia
  Research Fellow — *March 2016 - Oct. 2017*
  - **Consulting**: Communicated research goals to software developers at Torus games and ensured all stakeholders interests were represented
  - **Firebase**: Consulted on workflows for ingest and storage of data in Firebase. Wrote code to download, process, and analyze data

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

- **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

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)

  Relevant Coursework: Statistics, Design & Research Methods, Technology & Data Acquisition, Advanced Quantitative Methods

Full details of publications, presentations, committee service, outreach, and mentorship available upon request.