Linden Parkes, Ph.D.

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Publication list: Linden Parkes

Experience & Training

- **The University of Pennsylvania** — Philadelphia, PA
  Postdoctoral Research Fellow — *July 2019 - Present*
  - Network & machine learning analysis of neuroimaging and mental health data
- **The University of Pennsylvania** — Philadelphia, PA
  Teacher's Assistant & Guest Lecturer — *Fall 2019 & Fall 2020*
  - 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*
  - Development of machine learning Python library for neuroimaging data: PCNtoolkit
- **Torus Games** — Melbourne, Australia
  Research Consultant — *March 2016 - Oct. 2017*
  - Translated research goals to software developers
  - Mobile app development
  - Stakeholder management
  - Database design
- **Monash University** — Melbourne, Australia
  Doctor of Philosophy (Computational Neuroscience) — *2014 – June 2019*
  - Advanced quantitative analysis of high-dimensional multi-source data
  - Data processing pipeline design / implementation
  - Presentation of complex information in an accessible format
  - Teaching Python / MATLAB programming, data cleaning, visualisation, cloud computing, statistical, and machine learning methods to students

Projects

- **Modeled complex brain dysconnectivity using network control theory and successfully predicted mental health symptoms using machine learning**: All **Python** code written in **Jupyter notebooks** publicly available on Github
- **Successfully detected developmental brain abnormalities associated with psychiatric disorders**: 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

Skills

- **Network Science**: Graph Theory, Network Control Theory, Community Detection, Centrality
- **Machine Learning**: Deep Learning, Supervised Classification, Unsupervised Clustering, Regression, Cross-validation, Model Scoring, Parameter Tuning, Feature Selection & Standardization, Dimensionality Reduction
- **Statistics**: Time Series Analysis, A/B Testing, Analysis of Variance, Data Resampling, Dependent Data
- **Coding**: Python, Matlab, SQL, Shell, Git, Linux OS, High-Performance Computing

Undergraduate Education

- **Swinburne University of Technology** — Melbourne, Australia
  Bachelor of Science (Psychology, Psychophysiology) — *2009 – 2013*
  Honours (capstone research project), First Class, Dux (top of the class)

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