

# JAMES WILSENACH

## Biomedical Researcher & Data Scientist

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📍 London, UK

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in jameswilsenach

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## EXPERIENCE

### Postdoctoral Research Fellow

University College London, Mentors: Karl Friston, Richard Rosch

📅 Jan 2022 – Ongoing 📍 Wellcome Centre for Neuroimaging

- Design machine learning tools to inform medical intervention in patients with refractory focal epilepsy (part of the EU's Human Brain Project)
- Work with doctors to collaboratively build a personalised machine learning pipeline to inform patient care from their seizure recordings
- Streamline healthcare databasing, storage and anonymisation

### Research Intern

Neuroelectrics Corporation, Mentor: Giulio Ruffini

📅 Oct 2020 – Jan 2021 📍 Remote, Barcelona

- Innovated databasing and machine learning analysis tools for electrical stimulation-based epilepsy therapies
- Supervised on construction of realistic 3D neuron models and brain connectivity networks from patient data

### Teaching Roles

Various Universities

📅 2016 – 2021 📍 Oxford, Stellenbosch

Taught courses on applied network statistics, logic and applied mathematics at Oxford and Stellenbosch universities.

## TECHNICAL SKILLS

### Data Science

Machine Learning, Applied Statistics, Simulation, Neural Networks



### Programming

Advanced: Python, MATLAB, R Basic: C++, HTML



### Biomedical Science

Molecular Biology, Genomics, Neuroscience, Experimental Design



## EDUCATION

### DPhil Statistics

Supervisors: Charlotte M. Deane, Gesine D. Reinert

📅 2017–2022 📍 University of Oxford

*Computational network models for molecular, neuronal and brain data in the presence of long range dependence*

Developed a suite of non-parametric statistics, networks analysis and unsupervised machine learning methods to analyse and remove systematic and inspection bias in protein, gene and brain networks.

### MSc Informatics: Machine Learning (1<sup>st</sup> Place)

Supervisors: Douglas Armstrong, Ian Simpson

📅 2016 – 2017 📍 University of Edinburgh

*Differential (Gene Expression) Network Analysis of the Postsynaptic Density in Development & Ageing*

### BSc (Hons): Mathematics, Statistics, Genetics (1<sup>st</sup> Place)

University of Stellenbosch, University of Cape Town

📅 2011 – 2015

## ABOUT ME

James is a biomedical data scientist with wide-ranging experience in neuroscience, molecular biology, and machine learning. He has a special interest in statistical rigour in the health sciences and quantitative analysis of biomedical and public health research using statistical meta-analysis to understand bias. Personal projects include innovating automated database structure with large language models and Brain Computer Interface development.

## AWARDS



### Top Performing Student

MSc Informatics with specialties in machine learning and bioinformatics



### Alan Turing Enrichment Scheme

Turing Centre for Artificial Intelligence PhD Enrichment Scheme



### BR41N.IO Competition Winner

Won a design competition with an application to help persons with disabilities access visually complex user interfaces using brain signals



### Commonwealth PhD Scholarship

Awarded to innovate computational drug discovery and biomedical tools to enhance developing country research



### Epidemiological Modelling Scholarship

BSc scholarship and training from South African Centre for Epidemiological Modelling and Analysis (SACEMA)

## PUBLICATIONS



### Journal Articles

- “Hidden brain states...,” *Brain*, In Progress.
- J. B. Wilsenach, C. E. Warnaby, C. M. Deane, and G. D. Reinert, “Ranking of communities...,” *Appl. Net. Sci.*, 2022.
- J. Wilsenach, P. Landi, and C. Hui, “Evolutionary fields...,” *Phys. Rev. E*, 2017.



### Conference Proceedings

- “Can structural network priors improve models...,” in *AI Epilepsy & Neuro*, 2023.
- “Neuron tree construction...,” in *Quant. Biolmaging*, 2020.
- “Controlling for inspection bias in protein networks...,” in *COSTNET*, 2018.