Lincoln Colling PhD

DATA SCIENTIST, MACHINE LEARNING ENGINEER, COGNITIVE SCIENTIST

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Former educator and academic cognitive neuroscientist, philosopher and applied statistician working as a machine learning engineer building an AI-powered data analytics platform

Work Experience

Machine Learning Engineer *2023–Present*
London, UK
Point Sigma: AI-powered data analytics

- **First engineering hire**, tasked with scaling the platform
- Improved efficiency of the platform so that it can deal with larger datasets

Fellow *2023–Present*
Remote
Software Sustainability Institute

- Funded for a project aimed at reducing the climate impacts of scientific code by improving code efficiency
- Winner of the Collaborations Workshop Hack Day for a climate aware task scheduler for high-performance computing clusters

Lecturer *2019–2023*
Brighton, UK
University of Sussex: School of Psychology

- **Statistical Software Development**: Projects included an R Package and a web-app (React / Golang) for Bayesian analysis.
- **Curriculum Design and Delivery**: Designed and delivered Masters level courses on Advanced Bayesian Statistics and Scientific Computing for Cognitive Neuroscience. Designed and delivered the school's first undergrad R course.
- **Leadership**: Deputy Director of Doctoral Studies and Open Science Lead, championing reproducible research practices
- Early Career Researcher Lead on University-level steering group. Research group leader, managing a team of researchers.
- Led a teaching team of 2 lecturers and 7 doctoral tutors delivering a core undergraduate module to over 550 students.
- **Data and statistics consulting**: Data scientist on a large COVID-19 project, managing and analysing a data-set with over a million data points

Software Engineer *June 2021–Sept 2021*
Remote
Nested Minds: Neuroscience inspired AI

- Drove an initiative to improve company-wide code testing practices,
- Improved user experience on AI video director system by implementing live-streaming abilities,
- Built data pipeline for community modelling system responsible for making decisions related to credit and loans.
- A trusted advisor who was frequently asked to consult on and review code across different business units.

Research Scientist *2015–2019,*
Cambridge, UK
University of Cambridge: Department of Psychology

- **Project management**: Coordinated a large research project with over 30 staff from 17 universities to deliver one of the largest projects of its kind to date.
- Guest lecturer **MSt AI-Ethics** on research methods for AI and Machine Learning
- **Data science**: Performed data analysis on projects, including projects using brain imaging and multivariate time series data.
- Built and deployed statistical models, including Bayesian models

Education

PhD in Human Cognitive and Brain Sciences *2007-2012*
Sydney, Australia
MACQUARIE UNIVERSITY
Thesis: Predicting the actions of other agents

MSc (hons) in Cognitive Neuroscience *2004-2006*
Auckland, New Zealand
UNIVERSITY OF AUCKLAND
Graduated with First Class Honours

Skills

TECHNICAL SKILLLS

Programming Languages	**Python** (Pandas, NumPy, Scikit, PyTorch) **R** (dplyr, ggplot2, brms) **Javascript** (React, Node) **Rust** (including for building high performance libraries in Python) **Go** Functional programming, OOP, SQL
Quantitative Methods	Applied statistician with experience in both frequentist and Bayesian methods Mathematical modelling of cognitive processes. Analysis of complex time series data
DevOps	Docker, GitHub Actions, CI/CD
Miscellaneous	Linux, Shell, git, Test-Driven Development

SOFT SKILLLS

People management	Have successfully managed several large teams of researchers
Project management	Experience coordinating large complex projects involving large diverse teams
Teaching	Effective teacher of complex technical topics to a range of audiences Fellow of the Higher Education Academy

Selected Technical talks

High Performance Code for Data Science
Sussex Data Science
July 2023

YOUTU.BE/E_JE8_5WEDK

Public talk at the Sussex Data Science Meetup on the role of Rust in the data science toolbox

Benefits of Efficient Computing
Environmental Impacts of Computing in Health & Life Sciences Research
November 2003

WWW.YOUTUBE.COM/WATCH?V=6HURLFRGQEM

Talk at the EIC Workshop on how reducing the climate impacts of scientific computing through the use of efficient algorithms

Selected Scientific Publications

Author of over 20 scientific publications across neuroscience, statistics, and philosophy. Selected recent publications include:

2024 Ten recommendations for reducing the carbon footprint of research computing in human neuroimaging in *Imaging Neuroscience*

2023 What's in a Badge? A Computational Reproducibility Investigation of the Open Data Badge Policy in One Issue of Psychological Science in *Psychological Science*

2022 Return of the Math: Markov blankets, dynamical systems theory, and the bounds of the mind in *Behavioural and Brain Sciences*

2021 Statistical inference and the replication crisis in *Review of Philosophy and Psychology*

2020 Registered replication report on Fischer, Castel, Dodd, and Pratt (2003) in *Advances in Methods and Practices in Psychological Science*

2019 From symbols to icons: The return of resemblance in the cognitive neuroscience revolution in *Synthese*

Selected Open-Source Projects

CATS: Carbon Aware Task Scheduler
github.com/GreenScheduler/cats

SCHEDULER FOR HPC JOBS

Scheduler for HPC jobs designed to schedule task based on estimated carbon intensity of the electricity grid

Bayesplay R Package
github.com/bayesplay/bayesplay

R PACKAGE FOR PERFORMING BAYESIAN STATISTICAL ANALYSES

Provides a general purpose modelling syntax for defining priors and likelihoods and for computing and visualizing posteriors and Bayesfactors.
It has also been incorporated into the popular JASP statistics package (jasp-stats.org)