

Amelia Edmondson-Stait

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Profile

PhD researcher at the University of Edinburgh using epidemiological and statistical methods for mental health research. Well developed in data cleaning and analysis, R, and statistical modelling. Developed an R Shiny application to facilitate longitudinal statistical modelling during a 6-month secondment from my PhD.

Education

PhD Translational Neuroscience (Wellcome Trust), University of Edinburgh

May 2024

Developed critical thinking, independent work, and problem-solving skills

- First year 10-week rotation projects**
- Ability to **quickly integrate into existing teams** to produce positive outcomes for short-term projects, teaching myself new research topics and skills.
 - These included creating **bash shell script pipelines** to run scripts for **R, MATLAB** and data-specific analysis software to clean, process and analyse data on high-performance computers.
 - **Pipelines I made were used by other team members** for their projects.

PhD Thesis

- Investigated immune-system alterations across major psychiatric disorders, employing **statistical methods e.g. regression analysis, clustering algorithms, and multi-level modelling of longitudinal and large population cohort data** of different data types.
- Wrote findings as scientific articles **published in respected journals** in the field.
- Keen user of **GitHub** to version control code and make public upon article publication.

Other Projects, Skills and Awards

- **Data cleaning, quality checking and analysis of sensitive patient-level NHS data** using **SQL and R** in a trusted-research environment (Windows VM) to help colleague with their time-limited project.
- Initiated and led biweekly **coding club** in our research group. Opportunity for **code review**, share coding problems and learn skills from each other in a supportive environment (github.com/ccbs-stradl/coding_club).
- Finalist for the **University's Good Research Practice Awards** (Nov 2022).
- Numerous experiences in **communicating technical content** to both technical and non-technical audiences using a variety of methods (scientific articles, conference poster presentations, lab meetings, digital storytelling and public outreach events).
- **Led a team** project to raise awareness of a rare genetic condition through public outreach, overseeing the development of a storyboard animation with simplified medical terminology, collecting family input, and **organising peers** to ensure timely project delivery and presentation at a local conference.
- **Strong project management** skills on both independent and team projects; familiar with **agile** working.
- Ability to **balance multiple priorities** and **meet deadlines** such as funding, conferences and self-imposed thesis deadlines.

First Class Honours BSc Neuroscience, Cardiff University

June 2016

Professional Training Year at University of Exeter in an electrophysiology research lab (2015)

Work Experience

Data Analyst (App Developer), University of Edinburgh

Feb – Sept 2023

- **Developed an R Shiny app:** "Tool to Implement Developmental Analyses of Longitudinal Data (TIDAL)". This tool enables ease of longitudinal trajectory modelling for users without specialist statistical or coding backgrounds, e.g. other researchers, clinicians and teachers (github.com/TIDAL-modelling/TIDAL).
- **Created a virtual Linux machine/web server** (OpenStack) to host the app.
- Successfully **secured additional funding** for the app by pitching to funding bodies (Wellcome Trust).
- Gave **presentations and workshops** to showcase its functionality and **received positive feedback** that this tool will be incredibly useful for the longitudinal research community, demonstrating **customer awareness**.
- **Collaborated with external developers** to address technical challenges during the creation of a desktop version of the app.
- Successfully improved **debugging techniques** as project progressed and documented these using GitHub issues.
- Showed dedication to self-learning reactive coding in R, **adaptability** in a team environment, and **responsive to changing project priorities** while **integrating user feedback** into app development.

Research Assistant, University of Cambridge

Oct 2016 – May 2019

- Reconstructed and identified neurons involved in associative learning and memory and analysed their connectivity using scripts I wrote in R.
- Competently use R, **bash shell**, **GitHub**, CATMAID (neuron reconstruction software).
- **Large collaboration** with HHMI Janelia (USA) and University of Oxford resulted in authorship of a publication (Felsenberg et al. 2018).
- **Responsible for training new colleagues** (two post-doctorates and four research assistants) in the use of the neuron reconstruction software.
- Set up and led monthly **coding club**.
- **Presented fortnightly** at lab meetings.

Skills & Abilities

- R (8+ years)
- Python (3+ years)
- SQL (1+ years)
- Bash Shell Scripting (4+ years)
- High-performance computing
- Virtual machine development
- Statistical analysis of large datasets
- Communicating technical content
- git and GitHub

Relevant Training Workshops

- Software Carpentry: Unix, Git, Python (Nov 2020)
- Data Carpentry: FAIR in (biological) practice (Feb 2022)
- Data Carpentry: Conda environments (Mar 2022)
- Data Carpentry: High dimensional statistics (May 2022)
- HDRUK Immersive Data Science Week - Birmingham University (April 2023)
- HDRUK Data Engineering Practical Workshop (Agile & Python) (April 2023)

Activities & Interests

- Enjoy learning from and meeting people from a variety of backgrounds e.g. **evening car mechanic course** (current), **community gardening** (10+ years), **befriending elderly patients** in hospital (2018), **volunteering at a homeless shelter** (2017-2018), **volunteering as steward** at festivals (2019 & 2023) & **army cadets** (2009).
- Continuously actively seeking to **push myself outside my comfort zone** including **learning new skills** e.g. bouldering/climbing and car mechanics over previous year.

Publications

MacSweeney N, Allardyce J, **Edmondson-Stait A**, Shen X, Casey H, Chan SWY, Cullen B, Reynolds RM, Frangou S, Kwong ASF, Lawrie SM, Romaniuk L, Whalley HC. The role of brain structure in the association between pubertal timing and depression risk in an early adolescent sample (the ABCD Study®): A registered report. *Dev Cogn Neurosci*. 2023 Apr;60:101223.

Edmondson-Stait AJ, Shen X, Adams MJ, Barbu MC, Jones HJ, Miron VE, Allardyce J, Boardman JP, Lawrie SM, McIntosh AM, Khandaker GM, Kwong ASF, Whalley HC. Early-life inflammatory markers and subsequent psychotic and depressive episodes between 10 to 28 years of age. *Brain Behav Immun Health*. 2022 Oct 10;26:100528.

Adezati E, Thye M, **Edmondson-Stait AJ**, Szaflarski JP, Mirman D. Lesion correlates of auditory sentence comprehension deficits in post-stroke aphasia. *Neuroimage Rep*. 2022 Mar;2(1).

Sewell MDE, Jiménez-Sánchez L, Shen X, **Edmondson-Stait AJ**, Green C, Adams MJ, Rifai OM, McIntosh AM, Lyall DM, Whalley HC, Lawrie SM. Associations between major psychiatric disorder polygenic risk scores and blood-based markers in UK biobank. *Brain Behav Immun*. 2021 Oct;97:32-41.

Otto N, Pleijzier MW, Morgan IC, **Edmondson-Stait AJ**, Heinz KJ, Stark I, Dempsey G, Ito M, Kapoor I, Hsu J, Schlegel PM, Bates AS, Feng L, Costa M, Ito K, Bock DD, Rubin GM, Jefferis GSXE, Waddell S. Input Connectivity Reveals Additional Heterogeneity of Dopaminergic Reinforcement in *Drosophila*. *Curr Biol*. 2020 Aug 17;30(16):3200-3211.e8.

Sayin S, De Backer JF, Siju KP, Wosniack ME, Lewis LP, Frisch LM, Gansen B, Schlegel P, **Edmondson-Stait A**, Sharifi N, Fisher CB, Calle-Schuler SA, Lauritzen JS, Bock DD, Costa M, Jefferis GSXE, Gjorgjieva J, Grunwald Kadow IC. A Neural Circuit Arbitrates between Persistence and Withdrawal in Hungry *Drosophila*. *Neuron*. 2019 Nov 6;104(3):544-558.e6.

Felsenberg J, Jacob PF, Walker T, Barnstedt O, **Edmondson-Stait AJ**, Pleijzier MW, Otto N, Schlegel P, Sharifi N, Perisse E, Smith CS, Lauritzen JS, Costa M, Jefferis GSXE, Bock DD, Waddell S. Integration of Parallel Opposing Memories Underlies Memory Extinction. *Cell*. 2018 Oct 18;175(3):709-722.e15.