

# Alexa Mousley

[alexa.mousley@mrc-cbu.cam.ac.uk](mailto:alexa.mousley@mrc-cbu.cam.ac.uk)

[Google Scholar](#), [Website](#), [GitHub](#)

## EDUCATION

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2021 – 2025	PhD	Medical Sciences	University of Cambridge, UK
2016 – 2020	BA	Neuroscience and Behaviour (with honours)	Vassar College, USA

## PROFESSIONAL HISTORY

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May 2025 – Present      **Post-Doctoral Research Associate, [4D lab](#)**      *Department of Psychiatry, University of Cambridge*

- Investigate how structural brain connectivity relates to adolescent mental health, genetic predisposition, cognitive abilities, and adverse experiences, using over 9,000 participants from the Adolescent Brain Cognitive Development dataset ([ABCD](#)).
- Develop innovative methodological approaches for extracting patterns from complex brain architecture.
- Manage lab duties, such as reporting outputs to funders (e.g., Research Fish), and conducting interviews for incoming graduate students.
- Foster international collaborations across disciplines, including with genetic and mental health experts.
- Co-supervise and mentor graduate students, including by aiding data processing and code development.
- Provide informal training and lab-wide workshops in tractography and data processing.
- Communicate research in conference presentations (poster and oral), peer-reviewed publications, and to the public in media (e.g., TV, radio and print articles).

Oct. 2025 – Present      **Postdoc Committee Member**      *MRC Cognition and Brain Sciences Unit, University of Cambridge*

- Organise, run and host events, such as the all-day Postdoc Retreat, social lunches, and game nights.
- Track postdoc wellbeing and needs, providing important resources, such as grant workshops, to support the community.

Oct. 2021 – April 2025      **PhD Candidate**      *MRC Cognition and Brain Sciences Unit, University of Cambridge*

- Conducted computational neuroscience research using advanced scientific methods (e.g., diffusion tensor imaging fibre tracking, machine learning and generative network modelling) to deepen understandings of the development of diverse brain networks (supervised by [Professor Duncan Astle](#) and advised by [Professor Joni Holmes](#)).
- Identified appropriate datasets, completed data sharing and administrative duties to gather, organise, clean and preprocess data and published the data on [OSF](#).
- Initiated and fostered new, international collaborations to achieve ambitious research goals of lifespan mapping.
- Implemented neuroimaging pipelines (e.g. QSIprep) and conducted analyses in MATLAB, Python and R and published code on [GitHub](#).

March 2022 – Nov. 2022      **Venture Scientist, [ConceptionX](#)**      *Remote, London*

- Worked to develop a startup by assembling a team, drafting contracts, creating pitches, and formulating a product design plan.
- Participated in entrepreneurship workshops, such as in the art of pitching, negotiating with investors and IO strategies.

Aug. 2020 – Aug. 2021      **Volunteer Researcher Assistant, [Professor John Duncan's lab](#)**      *Remote, University of Cambridge*

- Explored the neurobiological mediators/moderators of the decline of fluid intelligence in healthy, ageing individuals using a large, population-representative, lifespan cohort of fMRI data (supervised by [Dr Daniel Mitchell](#)).

Aug. 2017 – May 2020      **Research Assistant, [Neuroscience Memory Lab](#)**      *Vassar College, NY, USA*

- Conducted experiments using immunohistochemistry, mammalian behaviour, and digital reconstruction of neural microstructures (supervised by [Professor Hadley Bergstrom](#)).

May 2019 – Aug. 2019      **Research Intern, [NeuroPoly Lab](#)**      *École Polytechnique, Montreal, Canada*

- Created an integrated pipeline using ImageJ, Python, and MATLAB to apply unsupervised machine learning for extracting myelin in spinal cord imaging (co-supervised by [Professor Julien Cohen-Adad](#) and [Dr Gabriel Mangeat](#)).

## SCHOLARSHIPS, GRANTS, & HONOURS

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2021 – 2025	Gates Cambridge Scholarship, <i>Gates Cambridge Trust</i>	Approx. £201,500
2020	Katharine Jones Baker Fellowship, <i>Vassar College</i>	\$3,000
2020	Neuroscience and Behavior Departmental Honours, <i>Vassar College</i>	
2020	General Honours, <i>Vassar College</i>	
2020	Sigma Xi Scientific Research Honor Society, <i>USA</i>	
2019	Psi Chi International Honor Society in Psychology, <i>USA</i>	
2019	Internship Grant Fund, <i>Vassar College</i>	\$2,500
2018	Internship Grant Fund, <i>Vassar College</i>	\$1,500

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2017 – 2019

Liberty League All-Academic Team, *NCAA*

## PUBLICATIONS & MANUSCRIPTS IN PREPARATION

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Dendorfer, A., Luppi, A., Poli, F., **Mousley, A.**, Astle, D., Fakhar, K. (in prep). Comprehensive benchmarking of distance metrics for generative connectome models. Will submit to *Network Neuroscience*.

Jelen, B. M., **Mousley, A.**,...& Astle, D. (in prep). The topology of adolescent mental health. Will submit to *Nature Mental Health*.

Trachtenberg, E., **Mousley, A.**, Jelen, M., & Astle, D.E. (2026). Mapping social profiles in childhood and adolescence: associations with cognition and brain structure. *bioRxiv*. <https://doi.org/10.64898/2026.04.20.719698>

**Mousley, A.** (2025). Formation, refinement, and reorganisation of complex brain network topology across the lifespan [Apollo - University of Cambridge Repository]. <https://doi.org/10.17863/CAM.121991>

**Mousley, A.**, Bethlehem, R., Yeh, F-C., & Astle, D.E. (2025). Topological turning points across the human lifespan. *Nature Communications*, 16(1), 10005, <https://doi.org/10.1038/s41467-025-65974-8>

Poli, F., Oldham, S., **Mousley, A.**, Bullmore, E.T., Vértés, P.E., & Astle, D.E. (2025). Right time, right place: Heterochronicity shapes brain network formation. *bioRxiv*. <https://doi.org/10.1101/2025.10.13.682136>

**Mousley, A.**, Akarca, D., & Astle, D. E. (2025). Premature birth changes wiring constraints in neonatal structural brain networks. *Nature Communications*, 16(1), 490. <https://doi.org/10.1038/s41467-024-55178-x>

Mitchell, D.J., **Mousley A.L.S.**, Shafto, M.A., & Duncan, J. (2023). Neural contributions to reduced fluid intelligence across the adult lifespan. *Journal of Neuroscience*, 43(2), 293-307. <https://doi.org/10.1523/JNEUROSCI.0148-22.2022>

Lawson, K.,...**Mousley, A.L.**,...& Bergstrom, H.C. (2022). Adolescence alcohol exposure impairs extinction and alters medial prefrontal cortex plasticity. *Neuropharmacology*, 21, 109048. <https://doi.org/10.1016/j.neuropharm.2022.109048>

Geary, C.G.,...**Mousley, A.L.**,...& Bergstrom, H. (2021). Sex differences in gut microbiota modulation of aversive conditioning, open field activity, and basolateral amygdala dendritic spine density. *Journal of Neuroscience Research*, 99(7), 1780-1801. <https://doi-org.ezp.lib.cam.ac.uk/10.1002/jnr.24848>

Scarlata, M.J.,...**Mousley, A.**,...& Bergstrom, H.C. (2019). Chemogenetic stimulation of the infralimbic cortex reverses alcohol-induced fear memory. *Scientific Reports*, 9(1), 1-15. <https://doi.org/10.1038/s41598-019-43159-w>

## SYMPOSIA & TALKS

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\***Mousley, A.** (*Upcoming*: 2026, September). Adolescent Brain Matures at 32. 10<sup>th</sup> International Workshop on Adolescence, SRHR & HIV 2026, Bangkok, Thailand.

\***Mousley, A.** (*Upcoming*: 2026, June). Lifespan Connectomics Meets AI: Complexity, Development and Clinical Applications Symposium. Organization for Human Brain Mapping conference, Bordeaux, France.

\***Mousley, A.** (2026, March). The four phases of brain rewiring. Better Futures Programme, Professional and Continuing Education, University of Cambridge, Cambridge, UK.

**Mousley, A.** (2026, January). Topological turning points across the human lifespan. WLTS at MRC Cognition and Brain Sciences Unit, University of Cambridge, Cambridge, UK.

\***Mousley, A.** (2025, September). Formation, refinement, and reorganisation of structural brain topology. University of Vermont, VT, USA.

\***Mousley, A.** (2025, September). Topological turning points across the human lifespan. Flash Talk at FLUX, Dublin, Ireland.

\***Mousley, A.** (2025, June). Topological turning points across the human lifespan. Power-Pitch at the Cambridge Imaging Festival, University of Cambridge, Cambridge, UK.

**Mousley, A.** (2023, October). Structural topology and network simulations across the lifespan. WLTS at MRC Cognition and Brain Sciences Unit, University of Cambridge, Cambridge, UK.

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\***Mousley, A.** (2023, September). Premature birth changes wiring constraints in neonatal structural brain networks. Centre for the Developing Brain at King's College London, London, UK.

**Mousley, A.** (2022, December). [Quantifying and modelling brain organization](#). Methods Day at MRC Cognition and Brain Sciences Unit, University of Cambridge, Cambridge, UK.

\***Mousley, A.** (2022, November). Simulating brain development. CamBrain Neurotalks, University of Cambridge, Cambridge, UK.

\***Mousley, A.** (2022, November). Simulating brains: how it works and what we learn. Presented to the public at the *Cambridge Festival*, Cambridge, UK.

\***Mousley, A.** (2022, September). A generative network model of neonatal brain development. Data Blitz at the Cambridge Neuroscience Seminar, University of Cambridge, Cambridge, UK.

\* Indicates invited talk

## POSTER PRESENTATIONS

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\***Mousley, A.**, Bethlehem, R., Yeh, F-C., & Astle, D. (2025, September). Turning points across the human lifespan. Poster at *FLUX*, Dublin, Ireland.

\***Mousley, A.**, Bethlehem, R., Yeh, F-C., & Astle, D. (2025, July). Turning points across the human lifespan. Poster at *UK Neural Computing Conference*, Imperial College, London, UK.

\***Mousley, A.**, Bethlehem, R., Yeh, F-C., & Astle, D. (2025, June). Turning points across the human lifespan. Poster at *Cambridge Imaging Festival*, University of Cambridge, Cambridge, UK.

\***Mousley, A.**, Bethlehem, R., & Astle, D. (2024, August). Turning points across the human lifespan. Poster at *Cognitive Computational Neuroscience*, Massachusetts Institute of Technology, Cambridge, MA, USA.

\***Mousley, A.**, Akarca, D., & Astle, D. (2023, July). Premature birth changes wiring constraints in neonatal structural brain networks. Poster at *Organization for Human Brain Mapping*, Montreal, Canada.

\***Mousley, A.**, Akarca, D., Carozza, S., & Astle, D. (2022, September). A generative network model of neonatal brain development. Poster at *Cambridge Neuroscience Seminar*, Cambridge, UK.

\***Mousley, A.**,...Bergstrom, H.C. (2020, April). Binge alcohol consumption affects Arc/arg3.1 expression following remote fear extinction recall in male and female adult C57BL/6N mice. Poster at the Vassar College *Neuroscience and Behavior Symposium*, Remote (due to COVID).

Wilk, V....\***Mousley, A.L.**,...& Bergstrom, H.C. (2019, October). Sex dependent influence of gut dysbiosis on defensive behaviors and basolateral amygdala dendritic morphology. Poster at *Society for Neuroscience*, Chicago, IL.

\* Indicates lead presenter.

## WORKSHOPS & POLICY DEVELOPMENT

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Invited attendee at CSaP roundtable on reframing mental health in policy making (2026, April). Hosted by the Centre for Science and Policy and the Downing Battcock Institute, Downing College, Cambridge, UK.

Invited to contribute to an evidence brief for the [Inquiry into the situation of young people not in employment, education or training \(NEET\)](#). All-Party Parliamentary Group on Poverty and Inequality, Remote.

Invited attendee at [Diverse Trajectories to Good Developmental Outcomes Workshop](#) (2022, November). *Global Scientific Conference on Human Flourishing*, Cambridge, UK.

## SUPERVISION & FORMAL MENTORSHIP

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April 2026 – Present

**Mentor for the British Neuroscience Association Scholars Programme**

*Remote*

- Provide professional and personal mentorship for graduate students in the UK.

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Oct. 2025 – Present

**Co-supervise Master's Student**

*University of Cambridge*

- Project title: Mapping longitudinal changes in structural networks using generative network modelling (Student: Halid Oguz Serce)

June 2023 – Present

**Mentor for Lumiere Education**

*Remote*

- Create individualised educational programmes and syllabi tailored to each mentee and teach weekly one-on-one sessions on research skills.
- Students mentored to date:
  - 12<sup>th</sup> grader from India interested in neural resilience and the development of Alzheimer's disease
  - 12<sup>th</sup> grader from India interested in depression and anxiety in adolescence
  - 12<sup>th</sup> grader from the USA interested in the gut-brain axis and mental health interventions (resulting in accepted manuscript in [The National Journal of High School Science](#))
  - 11<sup>th</sup> grader from the USA interested in brain tumours and brain connectivity
  - 11<sup>th</sup> grader from Qatar interested in motivation in human behaviour
  - 10<sup>th</sup> grader from the USA interested in whole-brain network organisation and psychiatric disorders
  - 10<sup>th</sup> grader from China interested in transdiagnostic mental health patterns in brain networks
  - 10<sup>th</sup> grader from Albania interested in ageing, memory, and Alzheimer's
  - 10<sup>th</sup> grader from the USA interested in neuroplasticity and addiction

## MEDIA INTERVIEWS (PRINT)

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### International News

[Hindustan Times](#) (April 2026)  
[The Wall Street Journal](#) (Dec. 2025)  
[The Times](#) (Nov. 2025)  
[The Sunday Times](#) (Nov. 2025)  
[The Guardian](#) (Nov. 2025)  
[BBC News](#) (Nov. 2025)  
[The Washington Post](#) (Nov. 2025)  
[NBC News](#) (Nov. 2025)  
[The Daily Mail](#) (Nov. 2025)  
[National Geographic](#) (Nov. 2025)  
[Le Nouvel Obs](#) (Nov. 2025)  
[El Mercurio](#) (Nov. 2025)  
[Der Standard](#) (Nov. 2025)  
[Trouw](#) (Nov. 2025)  
[El País](#) (Nov. 2025)

### Academic/Science Outlets

[Vassar College](#) (Feb. 2026)  
[Science Illustrated, Scandinavia](#) (Feb. 2026)  
[Science & Vie](#) (Jan. 2026)  
[PsyPost.org](#) (Jan. 2026)  
[NewScientist.com](#) (Nov. 2025)  
[Scientific American](#) (Nov. 2025)  
[Sciences et Avenir](#) (Nov. 2025)  
[EverydayHealth.com](#) (Nov. 2025)

My first author papers have been reported on by 342 news outlets and discussed in 622 social media posts and 19 blogs (according to Altimetric May 2026).

## MEDIA INTERVIEWS (NON-PRINT)

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### Radio

[CBC The Current](#) (Dec. 2025)  
[Radio 4 World at One](#) (Nov. 2025)  
[BBC Wales](#) (Nov. 2025)  
[BBC World Service News Hour](#) (Nov. 2025)  
[BBC Radio 5](#) (Nov. 2025)  
[ABC Radio Perth Drive](#) (Nov. 2025)  
[ABC North Coast](#) (Nov. 2025)  
[ABC News Radio](#) (Nov. 2025)  
[BBC Radio 5 Live Drive](#) (Nov. 2025)  
[The Agenda on Dubai Eye 103.8](#) (Nov. 2025)  
[CBC Radio 1](#) (Nov. 2025)  
[BBC Hereford & Worcester](#) (Nov. 2025)

### Live TV

[BBC News](#) (Nov. 2025)  
[Sky News](#) (Nov. 2025)

### Podcasts

[Fun Kids Science Weekly](#) (Dec. 2025)

My first author papers have been reported in 8 podcasts (according to Altimetric May 2026), featured on [ABC News](#), and was one of [NBC News' Tops Stories](#).

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## OTHER SCIENCE COMMUNICATION

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- Oct. 2025 **Navigating neurodiversity in the workplace** *University of Cambridge*
- Panellist for an event discussing building spaces where everyone can thrive.
- Oct. 2025 **Big Biology Day Volunteer** *Hills Road Sixth Form College, Cambridge, UK*
- Ran a family-friendly neuroscience stall, answering questions from parents and children about the brain and ran hands-on activities.
- Oct. 2023 – May 2024 **Event Organizer & Host** *Pint of Science, Cambridge, UK*
- Collaborated with a team to organise events (e.g., found speakers, coordinated venues, etc) for a worldwide science festival to share discoveries with the public.
  - Hosted three events to communicate scientific concepts with laypeople and encourage engagement with local artists.
- Aug. 2021 **Guest author, [Grey Matters](#)** *Vassar College, New York, USA*

## CLINICAL & TEACHING EXPERIENCE

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- Aug. 2019 – May 2020 **One-to-One Classroom Support** *Wimpfheimer Nursery School, New York, USA*
- Supported a five-year-old child with Down syndrome during an after-school programme.
- June 2018 – Aug. 2018 **Clinical Intern** *Chandelier Assessments, Vermont, USA*
- Observed and aided in children's psychological assessments, including the Wechsler Adult Intelligence Scale (WAIS).
- Jan. 2018 – May 2018 **Teachers Assistant** *Wimpfheimer Nursery School, New York, USA*
- Aided teacher in a classroom of five to eight two-year-olds and developed and ran an educational programme.

## PEER REVIEWS

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[Brain Communications](#), [Computational Cognitive Neuroscience Conference](#)

## SOFTWARE & TECHNICAL SKILLS

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**Coding:** R, Python, and MATLAB ([GitHub](#))

**Software and Tools:** DSI Studio, FreeSurfer, QSIprep, Slurm Workload Manager, and Open Science Framework ([OSF](#))

**Methods and Analyses:** Tractography, Graph theory, Generative network modelling (GNM), Uniform manifold approximation & projection (UMAP), Factor analysis, Clustering analysis, Support Vector Machines (SVM), Principal components analysis (PCA), Least absolute shrinkage and selection operator (LASSO), Generalised additive models (GAM), Linear mixed effects models (LMEM), Partial least squares regressions (PLS), Dynamic time warping (DTW), Morphometric INverse Divergence (MIND)

**Certifications:** DeepLearning.AI and Stanford (online) certified courses in *Advanced Learning Algorithms*, *Supervised Machine Learning: Regression and Classification*, and *Unsupervised Learning, Recommenders, and Reinforcement Learning*