

# Alexis Deighton MacIntyre

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[Website](#)

Citizenship: Canadian

Updated: January 20, 2026

## Education

2022 **PhD in Cognitive Neuroscience**  
University College London – London, United Kingdom  
Thesis: The analysis of breathing and rhythm in speech.  
Supervisors: Professor Sophie Scott, Professor Antonia Hamilton.

2017 **MPhil in Music & Science With distinction**  
Wolfson College, University of Cambridge – Cambridge, United Kingdom  
Thesis: Rhythm and Metre Modulate Serial Reaction Time Task Learning and Performance. Supervisor: Professor Ian Cross.

2012 **Bachelor of Music**  
Vancouver Island University – Nanaimo, Canada. GPA: 4.29/4.33

## Employment

Oct. 2023 – **Leverhulme and Isaac Newton Trust Early Career Fellow**  
Oct. 2026 MRC Cognition and Brain Sciences Unit, University of Cambridge.

Oct. 2021 – **Research Associate, Deep Hearing Lab**  
Sept. 2023 MRC Cognition and Brain Sciences Unit, University of Cambridge.

## Journal publications

2026 **MacIntyre, A. D.**, Gaultier, C., Goehring, T. [Decoding of Speech Acoustics from EEG: Going Beyond the Amplitude Envelope](#). *In press, Journal of Neural Engineering*.

2025 **MacIntyre A. D.** The map and the territory: Why diversity advances neuroscience. *Brain and Neuroscience Advances*, 2025:9.

2024 Akter, R. and **MacIntyre, A. D.** (2024).  
Cross-Linguistic Effects of the Speech-to-Song Illusion in Speakers of Bangla and English. *Quarterly Journal of Experimental Psychology*, 17470218241293627.

**MacIntyre, A. D.**, Carlyon, R. P., and Goehring, T. (2024). Neural decoding of the speech envelope: Effects of intelligibility and spectral degradation. *Trends in Hearing*, 28.

2023 **MacIntyre, A. D.**, Lo, H. L. J., Cross, I. and Scott, S. K. (2023). Task-Irrelevant Auditory Metre Shapes Visuomotor Sequential Learning. *Psychological Research*, 1-22.

2022 **MacIntyre, A. D.**, and Scott, S. K. (2022). Listeners are sensitive to the speech breathing time series: Evidence from a gap detection task. *Cognition*, 225, 105171.

**MacIntyre, A. D.**, Cai, C. Q. and Scott, S. K. (2022). Pushing the envelope: Evaluating speech rhythm with different envelope extraction techniques. *The Journal of the Acoustical Society of America*, 151(3), 2002-2026.

2018 **MacIntyre, A. D.** (2018). The signification of the signed voice. *Journal of Interdisciplinary Voice Studies*, 3(2), 167-183.

### Conference proceedings

2024 Y. E. Belghiti, K. Daoudi, K. Minaoui and **A. D. MacIntyre** (2024). Automatic detection of speech inspiration using SVM and decision trees. *IEEE 12th International Symposium on Signal, Image, Video and Communications (ISIVC)*, Marrakech, Morocco.

2023 **MacIntyre, A. D.** and Goehring, T. (2023). Effects of spectral degradation on the cortical tracking of the speech envelope. *Proceedings of INTERSPEECH*, Dublin, Ireland, ISCA.

**MacIntyre, A. D.** and Werner, R. (2023). An Automatic Method of Speech Breathing Annotation. *Proceedings of the 34th Conference on Electronic Speech Signal Processing (ESSV)*, Munich, DE.

2020 **MacIntyre, A. D.**, Rizos, G., Batliner, A., Baird, A., Amiriparian, S., Hamilton, A. and Schuller, B. W. (2020). Deep attentive end-to-end continuous breath sensing from speech. *Proceedings of INTERSPEECH*, Shanghai, China, ISCA. Schuller, B. W., Batliner, A., Bergler, C., Messner, E. M., Hamilton, A., Amiriparian, S., ... **MacIntyre, A. D.** and Hantke, S. (2020). The interspeech 2020 computational paralinguistics challenge: Elderly emotion, breathing and masks. *Proceedings of INTERSPEECH*, Shanghai, China, ISCA.

### Book chapters

2025 **MacIntyre, A. D.** (In press). Speech Rhythm in Hearing Loss and Cochlear Implant Listening. In L. Meyer and A. Strauss (Eds.), *Rhythms of Speech and Language*. Cambridge University Press.

## Preprints and Manuscripts in preparation

**MacIntyre, A. D.**, Goehring, T., and Davis, M. Flexible neural encoding of unprocessed and degraded speech for comprehension.

**MacIntyre, A. D.** Speech breathing kinematics vary by speaking style.

## Public communication and media

2022 **Beyond the Voice Box: How Ontologies of the Voice Determine Who, and How, We Sense**  
Luminomelia Philosophical Society, Cambridge, UK

2020 **The voice in ancient Greek and Roman society**  
Voice Box: An Evening Of Comedy About Voices, Identity And Experience, London, UK

**MacIntyre, A. D.** (Mar., 2019). What is a Voice? *Sounding Out!* ISSN 2333-0309.

## Awards and scholarships

2025 Post-Doctoral Travel Award for the Association for Research in Otolaryngology 49th Annual MidWinter Meeting, Puerto Rico (\$750)

2024 Scholarship to the 7th International Conference on Cognitive Hearing Science for Communication, Linköping, Sweden (Conference registration, accommodation, and travel)

2021 1st Place Prize in Mind and Behaviour, Graduate School Poster Competition, University College London (£400)

2019 Early Achievement Distinguished Alumni Award, Vancouver Island University

2018 The Brain Prize and FENS stipend award (€1,000)

2017 Overseas and Graduate Research Scholarships (now Research Excellence Scholarship), University College London (Full PhD tuition, research costs, and maintenance)

2016 Canada Cambridge Scholarship, University of Cambridge (Full MPhil tuition and maintenance, one awarded nationally)

2016 Merit Scholarship, University of Amsterdam (€15,000, declined)

## Grants and funding

2024 Accelerate-C2D3 Small Grant: Novel Applications of AI for Research and Innovation, University of Cambridge (Co-PI with Dr. Lidea Shahidi, £27,721)

Cambridge Language Sciences Workshop Fund Grant, University of Cambridge (Co-applicant with Dr. Jérémie Giroud, £2,000)

Public Engagement Starter Fund, University of Cambridge (Co-applicant with Dr. Lidea Shahidi, £1,975)

Conference Attendance Support, Gordon Research Conferences (\$1,000)

2023-2026 Junior Research Fellowship, Wolfson College, University of Cambridge (£2,400 in research expenses)

Leverhulme and Isaac Newton Trust Early Career Fellowship (salary, overhead costs, and £18,000 in research expenses)

British Academy Postdoctoral Fellowship (£324,867, declined)

2023 Guarantors of Brain Small Meeting Grant (co-applicant with Dr. Abbie Bradshaw, £3,000)

2020 INTERSPEECH2020 ISCA Student Grant (Conference registration)

2017 Grindley Travel Grant, Experimental Psychology Society (£500)

Music Faculty Travel Grant (£300)

## Invited talks

Apr. 2025 The Cognitive Neuroscience of Speech Perception  
*Padjadjaran University, Bandung, Indonesia*

Feb. 2025 Speech Science Forum  
*Psychology and Language Sciences, University College London, London, UK*

Dec. 2023 Decoding Speech from the Brain: Effects of Intelligibility and Spectral Degradation  
*Brain and Intelligence Science Alliance Young Scientist Forum, Fudan University, Shanghai, China*

Jan. 2019 Respiration and the Flow of Language  
*Linguistics Department, University of Kent, UK*

Dec. 2018 The Analysis of Speech Rhythm  
*Psychology Department, Bangor University, UK*

## Conference presentations

June 2024 Neural Decoding of the Speech Signal with Applications to Cochlear Implants. *7th International Conference on Cognitive Hearing Science for Communication, Linköping, Sweden*

Sept. 2023 Speech perception under acoustically degraded listening conditions: The Role of Language Familiarity. *Annual Scientific Meeting of the British Association for Cognitive Neuroscience, Cardiff, Wales*

June 2023 Cortical tracking of speech: Effects of intelligibility and spectral degradation. *The Virtual Conference on Computational Audiology (VCCA2023), online.*

Mar. 2023 An Automatic Method of Speech Breathing Annotation. *34th Conference on Electronic Speech Signal Processing (ESSV), Munich, DE.*

June 2022 Developing Automatic Methods for the Detection of Speech Breathing Inhalations from Breath Belt Data  
*Respi II Speech Respiration Workshop, Saarland University, DE (online)*

Feb. 2022 Pushing the envelope: Evaluating speech rhythm with different envelope extraction techniques  
*DGfS 2022 (Annual Meeting of the German Linguistic Society), University of Tübingen, DE (online)*

Oct. 2020 Deep Attentive End-to-End Continuous Breath Sensing from Speech  
*INTERSPEECH2020, Shanghai, China (online)*

Apr. 2018 Metric Structure Shapes Early Implicit Learning  
*The Brain Conferences: Computational Neuroscience of Prediction, Rungstedgaard, Denmark*

## Posters

Sept. 2025 Tracking of Acoustic and Linguistic Speech Features by the Brain  
*8th International Conference on Auditory Cortex, Maastricht, NL*

Sept. 2024 Neural decoding of speech: It goes beyond the envelope  
*Auditory Science Meeting, Cambridge, UK*

May 2024 Temporal Processing of Speech-Related Breathing  
*Gordon Research Seminar on Neural Mechanisms of Acoustic Communication, Newry, Maine, USA*

Sept. 2023 Cortical Tracking of Spectrally Degraded Speech  
*Basic Auditory Science Meeting, London, UK*

July 2023 Cortical Tracking in Speech Perception with Applications to Cochlear Implants  
*Conference on Implantable Auditory Prostheses, Lake Tahoe, California*

Apr. 2023 Cortical Tracking in Speech Perception with Applications to Cochlear Implants  
*British Cochlear Implant Group Meeting, Cambridge, UK*

Sept. 2022 Cortical Tracking in Speech Perception with Applications to Cochlear Implants  
*Hearing, Audio and Audiology Sciences Meeting, Southampton, UK*

May 2022 Listeners Are Sensitive to the Speech Breathing Time Series: Evidence from a Gap Detection Task  
*Annual Meeting of the British Association for Cognitive Neuroscience, Birmingham, UK*

June 2021 Listeners are sensitive to violations of natural speech breathing timing  
*Rhythm Production and Perception Workshop 2021, Oslo, Norway (online)*

Task irrelevant auditory metre shapes visual-motor sequential learning  
*Rhythm Production and Perception Workshop 2021, Oslo, Norway (online)*

Aug. 2019 "Mean Speech Rate" Doesn't Mean Much: Analysis of Speech Rhythm Benefits from Quantising Inter-Onset Intervals  
*Eleventh Annual Meeting of the Society for the Neurobiology of Language, Helsinki, Finland*

July 2019 The Flow of Language: Beat-Based Timing Enhances Synchronisation of Speech and Speech Breathing in a Joint Speaking Task  
*Joint Action Meeting (JAM VII), Genoa, Italy*

Apr. 2018 The Rhythmic Coordination of Breathing During Joint Speech and Imagined Joint Speech  
*Annual Research in Imagery and Observation Group Meeting, Bielefeld, Germany*

## Teaching experience

Spring 2021	<p><b>Teaching Assistant and Examiner, Quantitative Methods and Mathematical Thinking module, University College London</b>  Quantitative tools for exploring and analysing data, including inferential statistics and computer programming in python.</p> <p><b>Examiner, Knowledge, Learning and Inference module, University College London</b>  Computational formalism and methods in cognitive science, including Bayesian methods, symbolic approaches from artificial intelligence, machine learning techniques, and neural networks.</p> <p><b>Examiner, Psychology, Memory and Decision-Making module, University College London</b>  Fundamental topics in psychology, such as the comparison of memory systems and heuristics in decision-making.</p>
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## Supervision and External Evaluation

2025	<p><b>Susie Black, Psychology and Behavioural Sciences Part II Project, Cambridge University</b>  Project: Decoding speech perception from the brain</p> <p><b>Emilee Gosnell, NIHR Doctoral Clinical Academic Fellow, Cambridge University</b>  Upgrade examiner for PhD in Clinical Neurosciences</p>
2020 – 2021	<p><b>Rakhi Akter, Applied Medical Sciences Student, UCL</b>  Project: The speech-to-song illusion in Bengali and English speakers</p>
2020 – 2021	<p><b>Jakab Pilaszanovich, MSc Student, UCL</b>  Project: Auditory Not-Just-Right Experiences: Rhythm violation as a source of sensory imperfection</p>
2019 – 2020	<p><b>Josephine Lo, Laidlaw Scholar, UCL/The University of Hong Kong</b>  Project: Does rhythm affect how we learn?</p>
Spring 2019	<p><b>Bangjie Wang, Affiliate Psychology Student, UCL/Grinnell College</b>  Project: Classifying rhythmic speech patterns in Mandarin and English</p> <p><b>Julia Porter, Affiliate Psychology Student, UCL/McGill University</b>  Project: The salience of vowels as a classification feature in spontaneous versus controlled speech</p>

## Workshops and tutorials given

2023 **Plethysmography**  
COGNESTIC Summer School, MRC Cognition and Brain Sciences Unit, University of Cambridge

2022 **The Measure and Analysis of Respiratory Effort**  
Methods Day, MRC Cognition and Brain Sciences Unit, University of Cambridge

## Research roles

Sept. 2014 – Aug. 2016 **Research Assistant, Music and Neuroscience Lab**  
Mentors: Professor Jessica Grahn (Western University).

## Reviewing

Ear and Hearing, International Society of Music Information Retrieval, Journal of the Acoustical Society of America, Journal of Interdisciplinary Voice Studies, Frontiers in Neuroscience, Journal of Phonetics, Philosophical Transactions of the Royal Society B

## Service

2025 **In2science, UK**  
In2research Mentor supporting young people from disadvantaged backgrounds with the broad goal to boost diversity and inclusion in STEM.

2024 – 2025 **Interdisciplinary Voice: From Motor Control to Identity**  
Co-organiser of [this small meeting](#) at Newnham College, Cambridge, highlighting current research across brain and behavioural sciences, linguistics, speech technology, and other areas relating to the voice.

2022–Present **Equality and Diversity Committee, MRC CBSU**  
Promoting and improving departmental ED initiatives, planning annual Festival of Diversity event, and steering committee member and project demonstrator for the MRC CBSU's BrainBus programme for widening access.

2021 **IMPRS NeuroCom Summer School, Online (London, UK)**  
Co-organising the 10th IMPRS NeuroCom Summer School in Cognitive Neuroscience, a joint virtual event for students and ECR hosted by the Institute of Cognitive Neuroscience at UCL, UK and IMPRS NeuroCom at MPI CBS and Leipzig University

2019 **Big Bang Science Event at the City Academy Hackney (London, UK)**  
Designed and presented STEM workshops to year 8, 9, and 10 science students.

2019 – 2020

**Reach Out, London, UK**

Working with young people from schools in disadvantaged/over-exploited communities to build life skills and improve academic performance. Awarded "Mentor of the Term".

2016 – 2017

**Cambridge Singing for Breathing, Cambridge, UK**

Helped run therapeutic singing and exercise sessions funded by the British Lung Foundation for people with chronic lung conditions in the Cambridgeshire area

2014 – 2016

**Guelph Black Heritage Society, Guelph, Canada**

Planning committee for an annual series of community events honoring Black contributions to Canadian society

## Current and Past Society memberships

British Association for Cognitive Neuroscience, Association of Research British Neuroscience Association, British Cochlear Implant Group, Society for the Neurobiology of Language, Timing Research Forum, Association for Research in Otolaryngology, Cognitive Neuroscience Society

## Technical expertise

**Programming**

MATLAB, python, R, HTML/CSS, L<sup>A</sup>T<sub>E</sub>X, Git

**Software**

SLURM Workload Manager, Adobe CS, Audacity, PRAAT, PsychoPy, ProtoKinetics Movement Analysis Software, ActiView, labVIEW, LabChart

**Research**

Electroencephalography, gait recording and analysis, respiratory inductance plethysmography

**Languages**

English (fluent), Dutch (intermediate), French (beginner), German (beginner)