Guangting Mai

MRC Cognition and Brain Sciences Unit (CBU), School of Clinical Medicine, University of Cambridge, United Kingdom

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Research areas

I research brain processing of speech and language in typically listening and clinical (hearing-impaired, cochlear-implanted and post-stroke aphasic) individuals.

Ongoing projects:

(1) **Neural processing of audiovisual speech in adults with cochlear implants** (with Dr Matt Davis, University of Cambridge)

(2) **Neural tracking of speech in post-stroke aphasia** (PI: Dr Holly Robson, University College London)

(3) **Mother-child inter-brain synchrony in typically listening and cochlear implanted children** (PI: Prof Douglas Hartley, University of Nottingham)

Education

2020 **PhD Cognitive Neuroscience**, University College London (UCL) (Advisor: Prof Peter Howell)

2014 **MSc (Res) Cognitive Neuroscience**, University of Sheffield (Advisor: Prof Patricia Cowell)

2009 **BSc** (School of Physics), Sun Yat-Sen University (Mainland China)

Employment

2025—now **Wellcome Early Career Research Fellow,** MRC Cognition and Brain Sciences Unit, University of Cambridge (Line Manager: Dr Matt Davis)

2023—2025 **Postdoc Research Fellow**, Division of Psychology and Language Sciences, University College London (Line Manager: Dr Holly Robson)

2020—2024 **Postdoc Research Fellow**, NIHR Biomedical Research Centre, University of Nottingham (Line Manager: Prof Douglas Hartley)

2009—2013 **Research Assistant**, Department of Electronic Engineering, The Chinese University of Hong Kong (Line Manager: Prof William S-Y. Wang)

ACADEMIC PUBLICATIONS

Mai, G.*, Upton, E.*, Griffiths, T. D., Leff, A., Crinion, J., Mills, G., Neville, D., Anderson, S., Price, C. J., Halai, A., Blairs, M., Aller, M., MacGregor, L. J., Davis, M. H.†, Robson, H.† (2025) Cortical Speech Envelope Tracking Reflects Lesion-Symptom Profiles in Post-Stroke Aphasia. *PsyArXiv*. ***Joint first authors, †Joint senior authors.** doi.org/10.31234/osf.io/uqvtk_v1

Papoutselou, E., Saravanan, N., **Mai, G.,** Harrison, S., Dogan, H., Hartley, D. (2025) The Impact of Language Context on Inter-Brain Synchrony in Bilingual Families. *Frontiers in Cognition*, *4*: 1695132.

Guo, X., **Mai, G.,** Mohammadi, Y., Benzaquén, E., Yukhnovich, E. A., Sedley, W., Griffiths, T. D. (2025) Neural entrainment to pitch changes of auditory targets in noise. *NeuroImage*, *314*: 121270. doi.org/10.1016/j.neuroimage.2025.121270

Mai, G., Jiang, Z., Wang, X., Tachtsidis, I., Howell, P. (2024) Neuroplasticity of speech-in-noise processing in older adults assessed by functional near-infrared spectroscopy (fNIRS). *Brain Topography*, *37*(6): 1139-1157. doi.org/10.1007/s10548-024-01070-2

Papoutselou, E., Harrison, S., **Mai, G.,** Buck, B., Patil, N., Wiggins, I., Hartley, D. (2024) Investigating mother–child inter-brain synchrony in a naturalistic paradigm: A functional near infrared spectroscopy (fNIRS) hyperscanning study. *European Journal of Neuroscience*, *59*(6): 1386-1403. doi.org/10.1111/ejn.16233

Mai, G., Wang, W. S-Y. (2023) Distinct roles of delta-and theta-band neural tracking for sharpening and predictive coding of multi-level speech features during spoken language processing. *Human Brain Mapping*, *44*(17): 6149-6172. doi.org/10.1002/hbm.26503

Mai, G., Howell, P. (2023) The possible role of early-stage phase-locked neural activities in speech-in-noise perception in human adults across age and hearing loss. *Hearing Research,* 427: 108647. doi.org/10.1016/j.heares.2022.108647

Mai, G., Howell, P. (2022) Causal relationship between the right auditory cortex and speech-evoked envelope-following response: Evidence from combined transcranial stimulation and electroencephalography. *Cerebral Cortex,* 32(7): 1437-1454. doi.org/10.1093/cercor/bhab298

Mai, G., Schoof, T., Howell, P. (2019) Modulation of phase-locked neural responses to speech during different arousal states is age-dependent. *NeuroImage,* 189: 734-744. doi.org/10.1016/j.neuroimage.2019.01.049

Mai, G., Tuomainen, J., Howell, P. (2018) Relationship between speech-evoked neural responses and perception of speech in noise in older adults. *Journal of the Acoustical Society of America,* 143 (3): 1333-1345. doi.org/10.1121/1.5024340

Mai, G., Minett, J. W., Wang, W. S-Y. (2016) Delta, theta, beta, and gamma brain oscillations index levels of auditory sentence processing. *NeuroImage,* 133: 516–528. doi.org/10.1016/j.neuroimage.2016.02.064

Mai, G. (2014) Relative importance of AM and FM cues for speech comprehension: Effects of speaking rate and their implications for neurophysiological processing of speech. *Proceedings of the 15th Annual Conference of the International Speech Communication Association (InterSpeech)*, 2585-2589. doi.org//10.21437/Interspeech.2014-554

AWARDS & FUNDS

2025-2031 **Wellcome Early Career Award** (Neural Tracking of Audiovisual Speech in Adults with Cochlear Implants), Wellcome Trust (£667k, fEC: 1.6m)

2019 **Trainee Professional Development Award** (Causal Relationship between Auditory Cortex and Frequency-Following Responses), Society for Neuroscience ($2,500)

2018-2019 **UCL Research Excellence for Cross-Disciplinary Training** (Neuroplasticity of Speech Processing in Ageing Adults Using Functional Near Infrared Spectroscopy), UCL Graduate School, sponsored by Experimental Psychology and Medical Physics (£19k)

2014 **InterSpeech Student Travel Grant**, ISCA ($1,000)

History of *unsuccessful* applications:

Postgraduates: The Chinese University of Hong Kong (x2), University of Western Ontario, University of York, UCL ORS; **Postdocs:** University of Manchester, University of Cambridge (x2), University of Nottingham; **Research grants:** Wellcome Seed Award, Action on Hearing Loss Discovery Grant, Dunhill Medical Trust Project Grant; **Fellowships:** Sir Henry Wellcome Fellowship, British Academy Postdoc Fellowship, NIHR Advanced Fellowship, Wellcome Early Career Award, MRC Career Development Award

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RESEARCH TOOLS

Brain imaging tools: electroencephalography (EEG), functional near infrared spectroscopy (fNIRS), transcranial direct current stimulation (tDCS)

Programming tools: Matlab (EEG signal processing, mTRF analyses, fNIRS analyses, data compilation and visualisation, PsychToolBox), Python (PsychoPy), Java (JsPsych), R (statistical analyses), Praat (TextGrid annotation)

AD HOC REVIEWS

European Journal of Neuroscience, Developmental Cognitive Neuroscience, Hearing Research, Ear and Hearing, PLoS One, Scientific Reports, Frontiers in Neuroinformatics, Frontiers in Aging Neuroscience, Phychophysiology, Journal of Neurodevelopmental Disorders, Neuroscience and Biobehavioral Review