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.* (2026) Cortical Speech Envelope Tracking Reflects Lesion-Symptom Profiles in Post-Stroke Aphasia. *Brain Communications, 8(4):* fcag261 ***Joint first/senior authors,** doi.org/10.1093/braincomms/fcag261

Lawrence R. J., Papoutselou, E., **Mai, G.,** Wiggins, I. M., Hartley, D. E. H. (2026) Executive Function and Language: A Behavioural and Functional Near-Infrared Spectroscopy Study in 23 Normally Hearing Children and One Deaf Child with Cochlear Implants. *Frontiers in Human Neuroscience, 20:* 1719052. doi.org/10.3389/fnhum.2026.1719052

Papoutselou, E., Saravanan, N., **Mai, G.,** Harrison, S., Dogan, H., Hartley, D. E. H., (2025) The Impact of Language Context on Inter-Brain Synchrony in Bilingual Families. *Frontiers in Cognition, 4:* 1695132. doi.org/10.3389/fcogn.2025.1695132

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** (Studying Neuroplasticity of Speech-in-Noise Processing in Ageing Adults Using Functional Near Infrared Spectroscopy), UCL Graduate School, jointly sponsored by Experimental Psychology and Medical Physics (£19k)

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

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 Reviews, Langague, Cognition and Neuroscience; Imaging Neuroscience