Shutao Yi

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EDUCATION AND TRAINING

25/09/2023 – 24/09/2024 London, United Kingdom
MSC PSYCHOLOGY AND LANGUAGE SCIENCES, NEUROSCIENCE OF LANGUAGE AND SPEECH University College London

Relevant Modules: Methods in Cognitive Neuroscience: Neuroimaging (fMRI & EEG), Introduction to EEG for Speech and Language Research, Brain Stimulation, Programming in R

Final grade High Merit |

Thesis Examining the Involvement of Semantic Processing in Perceptual Learning of Noise-Vocoded Speech: a Dual-Task Study (Distinction)

01/09/2019 – 01/06/2023 Hunan, China
BA ENGLISH LANGUAGE Hunan Institute of Engineering

Relevant Courses: Introduction to Linguistics

Final grade 92.25

WORK EXPERIENCE

01/06/2024 – 12/2024 London, United Kingdom
UNIVERSITY RESEARCH ASSISTANT UNIVERSITY COLLEGE LONDON

- Voluntary internship under Associate Professor Emma Holmes (PI)
- Using Python and MATLAB for speech processing in the current research project focused on how hearing loss affects cognitive influences on speech-in-speech perception.

01/10/2024 – CURRENT London, United Kingdom
UNIVERSITY RESEARCH ASSISTANT UNIVERSITY COLLEGE LONDON

- Voluntary internship under Professor Patti Adank (PI) and Associate Professor Chris Carignan
- Maintained comprehensive laboratory logs for data collection sessions, documenting Electromagnetic articulography sensor configurations, recording errors, and session-specific issues to support research continuity and enhance data reliability.

CONFERENCES AND SEMINARS

27/11/2024 – 28/11/2024 London
British Neuropsychological Society Autumn Meeting

- Poster presentation at the British Neuropsychological Society Autumn Meeting 2024.
- Title: Examining the Involvement of Semantic Processing in Perceptual Learning of Noise-Vocoded Speech: a Dual-Task Study

Link https://liveuclac-my.sharepoint.com/:b:/g/personal/zczqsy6_ucl_ac_uk/ EapQTJ3HwkNOqZJoZyKcZb4B2wBOox4k96sWnc8ItwFqoQ?e=OVTkGc

PROJECTS

12/2023 – 09/2024
Examining the Involvement of Semantic Processing in Perceptual Learning of Noise-Vocoded Speech: a Dual-Task Study

- MSc dissertation (distinction) supervised by Professor Patti Adank.
- Designed and conducted behavior experiment on the Gorilla platform to examine the role of semantic attention and the effect of sentence predictability in perceptual learning of noise-vocoded speech, with Basic English Lexicon (BEL) and utilized the R programming packages for the GLMMs analysis of collected data.

03/2024 – 06/2024
Exploring the Role of Motor Cortex in Perception of Accented Speech

- Coursework at module of Brain Stimulation
- Independently designed experiment to replicate and extend the Motor Theory of Speech Perception using transcranial magnetic stimulation and electromagnetic articulography.

01/2024 – 05/2024
Differentiating the Voice Quality Based on Acoustically-measured Evidence

- Coursework at module of Speech Science
- Reviewed AI/ML applications in voice analysis, focusing on automated acoustic measurement for voice quality assessment and clinical detection

10/2023 – 01/2024
Critical Analysis on Effects of Aging on Cortical Representations of Continuous Speech

- Coursework at module of Auditory Cognitive Neuroscience
- Conducted systematic literature review on age-related hearing loss
- Designed EEG experiment utilizing mTRF multiverse analysis to examine syntax-semantics dissociation in speech comprehension across aging population

VOLUNTEERING

07/2024 – 08/2024 London
Education Assistant with Autistic Children and Young Adults

- Collaborated with professional therapists to facilitate social events and therapeutic activities, supporting neurotypical individuals and those with autism, learning difficulties, ADHD, and language disorders.
- Assisted participants in building social skills, fostering friendships, enhancing creative abilities, and developing confidence and independence.

HONOURS AND AWARDS

01/01/2022
National Scholarship – Ministry of Education of the People's Republic of China

01/09/2021
Principal Scholarship – Hunan Institute of Engineering

LANGUAGE SKILLS

Mother tongue(s): **CHINESE**

Other language(s): **ENGLISH** | **FRENCH**

DIGITAL SKILLS

Experience in MATLAB, python, and R | Neuroimaging Software (e.g. FSL, SPM, eeglab) | PRATT | Online behavioral experiments (Pavlovia, Gorilla, Prolific) | Microsoft Office package: Microsoft Word, Excel, PowerPoint, Access

Dear The Voice Communication Sciences (VoCS)

Background

My name is Shutao Yi, an MSc graduate in Psychology and Language Sciences, specializing in Neuroscience of Language and Speech at University College London (UCL). During my studies, I explored how neuroimaging and behavioural measurements can reveal speech and cognitive auditory processing, and how such processing could also be further validated by causal evidence from brain stimulation. My research interest mainly focuses on speech perception among different groups and how such processing could be affected by cognitive factors, e.g., attention, using neuroimaging and behavioural methods.

Research Experience and Skills

- *Neuroimaging*

During my MSc at UCL, I developed strong neuroimaging and statistical analysis skills through coursework and practical training. In the course module Methods in Cognitive Neuroscience taught by Dr. Leun J Otten. I was theoretically introduced to how principal neuroimaging techniques work. Also, I was equipped with the ability to record, analyse and interpret fMRI and EEG data using MATLAB and SPM. To deepen my expertise, I completed advanced courses in fMRI with topic focusing on cognitive neuroscience (with Prof. Joseph Devlin) and EEG techniques using EEGLAB primarily in language and speech studies, including mTRF analysis and machine learning applications (with Prof. Paul Iverson).

- *Statistical Analysis*

My statistical proficiency was honed through Prof. Stuart Rosen and Dr. Henrik Singmann's module, where I mastered advanced statistical procedures in experimental psychology, e.g., Mixed Effects Models, and advanced data visualization using R Studio. Despite my humanities BA background, I quickly adapted to quantitative methods, achieving a 78/100 in statistical module and demonstrating my ability to tackle complex research questions through a data-driven approach.

- *MSc Research Project*

For my MSc dissertation under Prof. Patti Adank, I actively and meticulously planned the project schedule. Specifically, I designed and adjusted behaviour experiment using Gorilla platform, recorded my MSc testing speech stimuli in the booth, using 'ProRec' for speech recording and MATLAB for additional processing, e.g., voice separation, volume normalization. Furthermore, I employed Pratt to meticulously analyse the pitch patterns of each sentence recording, ensuring the reliability and consistency of the experimental stimuli. In the later stage, I successfully identified and recruited participants meeting strict inclusion criteria, refined the dataset and conducted Generalized Linear Mixed

Model (GLMM) analysis using R. My findings suggest that adaptation (i.e., perceptual learning) to degraded speech can occur under divided attention and does not rely on domain-general processes (e.g., visual processing) or domain-specific processes (e.g., semantic processing). My thesis, which earned a distinction, has been accepted for a poster presentation at the British Neuropsychological Society Autumn Meeting in November 2024. This project has strengthened my technical and analytical skills while deepening my understanding of experimental design and data interpretation in speech research.

Future Goal

My career goal is to become a speech scientist specializing in speech perception across diverse populations, including aging people, Parkinson diseases group etc. As an MSc graduate, I never cease my desire to explore something new with effort and determination. To further enhance my practical skills and competitiveness, I have actively sought voluntary internships in various labs since my MSc year, gaining valuable hands-on experience in R, MATLAB, Python and electromagnetic articulography (EMA) etc. I am genuinely committed to advancing the understanding of speech perception through innovative voice communication research in VoCS. With my solid theoretical foundation, practical experience, and unwavering enthusiasm, I am confident in my ability to contribute meaningfully to VoCS project.

Contact of referees

1. Professor Patti Adank, University College London
    a. Applicant's MSc dissertation project supervisor
    b. Email: p.adank@ucl.ac.uk
2. Professor Yonghe Yang, Hunan Institute of Engineering
    a. Applicant's BA dissertation supervisor
    b. Email: 654778526@qq.com