Yike (Echo) Li

Master's Student | General Psychology, New York University
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EDUCATION

New York University ***New York, NY***

M.A., General Psychology (expected) Sep 2021 – Present

- Master's Thesis: The spectro-temporal information distinguishes between speech and music

Neuromatch Academy Computational Neuroscience Jul 2022

- Project: Prediction of semantically differentiated tasks from fMRI using standard GLM and time-decoding model

Peking University ***Beijing, China***

B.A., Spanish Language and Literature Sep 2015 - Jul 2019

Minor, Psychology (*National Fellowship for Undergraduate Research*, China)

The Autonomous University of Madrid ***Madrid, Spain***

Exchange student, Philology (*Santander Scholarship*, Spain) Sep 2017 - Feb 2018

RESEARCH EXPERIENCE

Poeppel Lab | New York University ***New York, NY***

Advisor: Dr. David Poeppel Sep 2021 – Present

Master's Thesis | The spectro-temporal information distinguishes between speech and music

- We applied advanced audio signal processing and big data methods to standardized corpora to quantify spectro-temporal structure in speech and music. To be specific, sound waveforms are transformed into a spectrogram using a filter-Hilbert method and then decomposed to the modulation domain using a 2D FFT, which is a neurally and ecologically relevant parameterization of sounds.
- We found that speech and music have different modulation patterns. Speech emphasizes the temporal details and music has a higher frequency resolution. The distinct pattern in speech and music is consistent with past studies on the functional asymmetry of the auditory cortex.

Other experience

- Behavioral experiment, fMRI and MEG scanning, data preprocessing and analysis.

Language Acquisition and Sound Recognition Lab | UC San Diego ***San Diego, CA***

Advisor: Dr. Sarah C. Creel Aug 2019 - Jun 2020

Independent Study | Pitch consistency in tone versus non-tone language speakers across domain

- Designed and conducted behavioral experiments to record subjects naming pictures and singing songs, and resampled pitch contours to quantify absolute and relative pitch differences, aiming to test possible difference in absolute and relative pitch consistency in linguistic and non-linguistic production in Mandarin native versus English native college students.
- Our findings suggest that tone language experience may benefit both absolute and relative pitch precision in speech production, while this advantage weakened substantially in music production, which requires a larger-scale extensive study.

Other experience

- Eye-tracked language acquisition experiments on preschoolers (ages 3-5)
- Normed language proficiency tests (PPVT-IV, MINT, GFTA) on both adults and children
- Undergraduate student mentorship (initials of mentored students: Y.D., H.W.)

Cognitive and Computational Neuroscience Lab | New York University *New York, NY*

Advisor: Dr. Biyu J. He Jul 2018 - Sep 2018

Summer Intern | EEG study on visual categorization and consciousness

- We designed a novel EEG protocol to test how consciousness may influence visual categorization on refined and coarse levels.
- Results from EEG data (analyzed using FieldTrip) showed the possible involvement of frontal cortex.

Other experience

- Inhibiting cortical regions with t-DCS and ICA cleaning of fMRI data.

Attention, Neural Aesthetic and Time Lab | Peking University *Beijing, China*

Advisor: Dr. Yan Bao Jun 2017 - Apr 2019

Independent Study | Relationship between temporal order threshold and perception of McGurk effect

- Synthesized stimuli with different voice-onset time (VOT) using Praat scripts and two psychophysical methods (constant stimuli, QUEST) to measure the temporal order threshold (TOT) in college students, aiming to explore a hypothetical relationship between time perception ability and the perception of McGurk effect.
- Our findings suggest that individual TOT may influence the perception of McGurk effect by mainly changing the perception and accuracy of the auditory input.

PUBLICATIONS AND CONFERENCES

- **Li, Y.**, Chang, A., & Poeppel, D. (2022, Oct. 6-8). The Spectro-temporal Information Distinguishes between Speech and Music. [Poster presentation]. *14th Annual Meeting of the Society for the Neurobiology of Language,* Philadelphia, PA.
- **Li, Y.**, Chang, A., & Poeppel, D. (2022, Apr. 29). The Role of Spectro-temporal Information in Speech and Music. [Poster presentation]. *26th Annual NYU Psychology Masters' Research Conference,* New York, NY.
- **Li, Y.**, & Creel, S.C. (2021, Jul. 28-31). Tone Language Enhances Consistency in Pitch Production Across Domain. [Slide presentation]. *16th International Conference on Music Perception and Cognition*, Sheffield, United Kingdom (online).

SKILLS

- **Language Skills:** Mandarin (native), English (fluent), Spanish (fluent, C1 in DELE), Japanese (beginner).
- **Experimental Skills:**
  - Proficient: conducting behavioral and eye-tracking experiments in adults and preschoolers;
  - Experienced: MRI/fMRI; MEG; EEG (FieldTrip); t-DCS.
- **Programming Skills:**
  - Proficient: MATLAB (Psychtoolbox, audio signal processing); R; Praat ; SPSS ;
  - Experienced: Python (OpenSesame, PsychoPy, Scikit-Learn, Nilearn, PyTorch); JavaScript (jsPsych)

OTHER EXPERIENCE

Thinkingdom Media Group Ltd. *Beijing, China*

Content Researcher (Marketing research and literary editing) Jul 2020 – Feb 2021

Rights and Data Manager (Marketing data analysis and literary rights management) Feb 2021 – Aug 2021

Peking University *Beijing, China*

Association of Accordion (Co-president) Jun 2016 – Jun 2018

Student Union (Co-president) Jun 2016 – Jun 2017