

Jun Ho Chai

junhoc94@gmail.com

Research Statement

My research focuses on the learning mechanisms of early language and cognitive development, as well as innovative assessment methodologies. I have worked on efficient computerized early vocabulary assessments, exploring how technology can refine child language evaluation. Currently, I am delving into direct assessment methods to gain deeper insights into children's developmental trajectories. My work on word segmentation simulation has revealed the confluence of speech's statistical properties on segmenting words. My goal is to enhance our understanding of child language development, aiming to positively impact children and families.

Education

2016 - 2021	PhD in Psychology (conversion from MA) Thesis Title: Developing very short computerised early vocabulary assessments in a multilingual setting for the Malay, Mandarin and English language. Funded by the Ministry of Science, Technology and Innovation (MOSTI).	University of Nottingham Malaysia
2013 - 2016	BSc (Hons) Psychology Final Year Project: Role of memory constraint in emergence of language structure, a simulation study.	University of Nottingham Malaysia

Experience

June 2023 - present	Research Assistant Professor - Conducting research about early language development with a focus on eye-tracking studies, naturalistic recordings, corpus analysis and computational modelling	Chosun University, South Korea
---------------------	--	--------------------------------

- Supervising research assistants in data preparation and coding.
- Course module: AFFECTIVE CODING FOR HUMAN MEDIA (45548-10) (Teaching the R language as a data analysis tool)

June 2022 -	Postdoctoral Researcher	Chosun
May 2023	<ul style="list-style-type: none"> - Establishing links between mother-child interaction patterns and early language acquisition - Identifying language learning mechanisms based on infant studies using eye-trackers - Identifying reliable eye-tracking measures to assess early vocabularies - Conducting research on early language development using LENA recordings, IPLP and multimodal data 	University, South Korea
October 2021 -	Visiting Researcher (remotely)	Chosun
May 2022	<ul style="list-style-type: none"> - Conducting research on early language development using LENA recordings - Preparing manuscripts for research work 	University, South Korea
June 2021 -	Research Associate	University of
July 2021	<ul style="list-style-type: none"> - Conducted analyses such as Exploratory Factor Analysis and interpretations of results from the Equality, Diversity and Inclusion UNM Survey. - Research output: Improve relevant support of protected groups for a more inclusive campus. 	Nottingham Malaysia
February -	Associate Software Developer (Part Time - Remote)	University of
March 2021	<ul style="list-style-type: none"> - Implemented computerised adaptive test on an existing online experimental platform powered by Django wrapped in Docker. 	Oslo, Norway

- Developed an automated script to facilitate preparation of data files to run language-specific vocabulary assessments.

September - December 2020	Lecturer (Part Time) - Facilitator and lecturer for 10 weekly lectures of Research Methods & Analysis (previously Statistical Methods 2).	University of Nottingham Malaysia
2017 - 2021	Postgraduate Researcher - Innovated a Bayesian, Item-response theory-based computerised adaptive testing approach to produce very short language assessments tool using tablets for children ages 3 years and below. - Conducted computational analysis using generalised linear mixed-effect models in analysing vocabulary and response data. - Prepared and published manuscripts.	University of Nottingham Malaysia
2016 - 2019	Graduate Teaching Assistant - Assisted practicals in applying qualitative and quantitative research methods using SPSS and PsychoPy.	University of Nottingham Malaysia
June - September 2016	Research Assistant - Prepare language data for statistical analysis, including data tidying, preparation of descriptive tables and visualisations, as well as doing background literature review	University of Nottingham Malaysia

Research

Manuscripts in revision

Chai, J. H., Jung, J., & Ko, E.-S. (in revision). Bidirectional patterns of agentivity in dyadic interactions and the importance of adults' initiative role in children's language development. <https://osf.io/preprints/psyarxiv/ks4xq>

Ko, E.-S., Jo, J., & Chai, J. H. (in revision). Word-order adaptation and lexical repetition in Korean child-directed speech: Implications for infants' learning nouns in a verb-dominant language. <https://osf.io/preprints/psyarxiv/dxbhm>

Manuscripts in preparation

Jung, J., Chai, J. H. & Ko, E.-S. (submitted) The Interplay of Family Socioeconomic Status, Parental Engagement, and Maternal Employment on Vocabulary Development in Korean Children. <https://osf.io/preprints/psyarxiv/depvx>

Chai, J. H., Mun, S., & Ko, E.-S. (in prep). Word Segmentation: Dissecting the Interplay between Statistical Properties and Register Advantages in Naturalistic Corpus. https://docs.google.com/presentation/d/1N60utxjGdj5AG-nhtQQOzUviKr2ksD_BAewaH0kNFoY/

Chai, J. H., Mun, S., & Ko, E.-S. (in prep). (tentatively) Statistical properties of input adapts to the developmental trajectory of children with varying impact on segmentability https://docs.google.com/presentation/d/1N60utxjGdj5AG-nhtQQOzUviKr2ksD_BAewaH0kNFoY/

Publications

Chai, J. H. (2022). Developing very short computerised early vocabulary assessments in a multilingual setting (Doctoral dissertation, University of Nottingham). <https://eprints.nottingham.ac.uk/67007/>

Chai, J. H., Low, H. M., Wong, T. P., Onnis, L., & Mayor, J. (2021). Extra-linguistic modulation of the English noun-bias: Evidence from Malaysian bilingual infants and toddlers. Journal

of Cultural Cognitive Science, 5, 49–64.

<https://link.springer.com/article/10.1007/s41809-021-00078-5>

Lo, C. H., Rosslund, A., Chai, J. H., Mayor, J., & Kartushina, N. (2021). Tablet assessment of word comprehension reveals coarse word representations in 18-20-month-old toddlers. *Infancy*. <https://onlinelibrary.wiley.com/doi/full/10.1111/inf.12401>

Chai, J. H., Lo, C. H., & Mayor, J. (2020). A Bayesian-Inspired Item Response Theory–Based framework to produce very short versions of Macarthur–Bates Communicative Development Inventories. *Journal of Speech, Language, and Hearing Research*, 63(10), 3488–3500. doi:http://dx.doi.org/10.1044/2020_JSLHR-20-00361

Workshops conducted

27 - 29 December 2022	Basic and intermediate statistics using R	Chosun University, South Korea
7 & 29 April 2020	Introduction to doing statistics in R	University of Nottingham Malaysia
5 December 2019	Research Workshop - Analysing Quantitative Surveys	University of Nottingham Malaysia

Awards

2022	The LEGO foundation Scholar Travel Awards for ICIS 2022 (unclaimed, VISA delayed due to COVID-19)
2018	Postgraduate Cross Cultural Travel Award from School of Psychology, University of Nottingham Malaysia. Travelled to University of Oslo for research purposes.

Conferences (past 5 years)

- Chai, J.H., Mun, S., Ko, E. S. (2023). How Child-Directed Speech Enhances Word Segmentation: Insights from a Computational Modeling Study of Korean. In THE 48TH BOSTON UNIVERSITY CONFERENCE ON LANGUAGE DEVELOPMENT (USA)
- Jung, J., **Chai, J.H.**, & Ko, E. S. (2023). Socioeconomic Status, Parental Play and Book-reading, Maternal Work Status and Vocabulary Development in Young Korean Children. In THE 48TH BOSTON UNIVERSITY CONFERENCE ON LANGUAGE DEVELOPMENT (USA)
- Chai, J.H., Mun, S., Ko, E. S. (2023). How caregivers' speech patterns enhance word segmentation: Insights from a computational modelling study on a Korean corpus. In Many Paths to Language (MPaL) 2023. (Netherland)
- Jung, J., **Chai, J.H.**, & Ko, E. S. (2023). Socioeconomic status, parental play and book-reading, maternal work status and vocabulary development in young Korean children. In Many Paths to Language (MPaL) 2023. (Netherland)
- Chai, J. H., Jung, J., Kwon, T., Ko, E. S. (2022). Mother's initiative role in conversational exchanges and its effect on children's language outcome. In the XXIII International Congress of Infant Studies 2022 Developmental Cascades. (Canada)
- Jung, J., **Chai, J. H.**, Ko, E. S. (2022). The effect of socioeconomic status on early vocabulary size in South Korean children. In the XXIII International Congress of Infant Studies 2022 Developmental Cascades. (Canada)
- Mayor, J., Chai, J. H., Lo, C. H., & Mani, N. (2020). Babylex-IRT: Estimating early vocabulary sizes using a Bayesian-inspired item-response theory approach. In The International Congress of Infant Studies 2020. (Canada)
- Chai, J. H., Mayor, J., Low, H. M., & Wong, T. P. (2018). Measuring early language developmental trend in Malaysia using the Malaysian Communicative Developmental Inventories. In Asia-Pacific Babylab Constellation Conference, Nanyang Technological University, Singapore.

Academic Services

Reviewed for the following journals:

Current Psychology

Journal of Child Language

Infant and Child Development

Asia Pacific Journal of Educators and Education

Technical Skills

Data Analysis Pipeline/Computational: R; Python; Matlab; UNIX/Linux; SPSS;

Corpus/Speech: Praat; CLAN; ELAN; **Experimentation:** PsychoPy

Language

Mandarin (Native); Cantonese (Native); English (Bilingual Proficiency); Malay (Professional Working Proficiency); Korean (Limited Working Proficiency); German (Elementary Proficiency)