Jiaxuan Li

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EDUCATION

University of California Irvine — CA, US
Ph.D. in Language Science, Advisor: Richard Futrell — 2021–Current

University of Chicago — IL, US
M.A. in Computational Social Science — 2019–2021

- Thesis: A noisy channel model of N400 and P600 in sentence processing (Advisor: Allyson Ettinger)

The Hong Kong Polytechnic University — Hong Kong
B.A. in Chinese and Bilingual Studies — 2015–2019

- Thesis: Against Semantic Prediction during Online Sentence Comprehension (Advisor: Stephen Politzer-Ahles)

RESEARCH INTEREST

- Cognitive Modeling: Modeling and tracking neural representation involved in language processing

- Language Processing: Understanding the cognitive underpinnings of language-related neural signals

- AI interpretability: Assessing linguistic capacity and cognitive ability of state-of-the-art NLP models

EXPERIENCE

University of California Irvine — CA, US
PhD student (Advisor: Richard Futrell) — 2021–current

- Understand language prediction in humans and machines
- Modeling EEG experiments with information-theoretic approach
- Use transformers and auto-regressive large neural nets to design human-like language processing system

University of Chicago — IL, US
Research Assistant (Advisor: Allyson Ettinger) — 2019–2021

- Model neural responses to language comprehension with noisy channel model
- Increase pragmatic interpretability of language models

University of Chicago — IL, US
Research Assistant (Advisor: Ming Xiang) — 2019–2021

- Investigate the neural nature of contextual effects on language prediction
- Design and conduct EEG experiments

University College London — UK
Summer Research (Advisor: Wing-Yee Chow) — 2018

- Investigated psychological and neurological aspects of time-course language prediction
- Data collection for an eye-tracking and an ERP experiment

University of Cambridge — UK
Exchange Student — 2017

- Independent research on the impact of age and literacy acquisition on first language attrition

Publications and Manuscripts

1. **Li, J.,** & Ettinger, A. Heuristic interpretation as rational inference: A computational model of the N400 and P600 in language processing. *Cognition (To Appear).*

2. **Li, J.,** Ou, J., & Xiang, M. When contextual expectations are violated: ERP evidence. *In preparation.*

Peer-reviewed Presentations

1. **Li, J.,** & Futrell, R. A unified information-theoretic model of EEG signatures of human language processing. *NeurIPS 2022 Workshop on Information-Theoretic Principles in Cognitive Systems*

2. **Li, J.,** Yu, L., & Ettinger, A. Counterfactual reasoning: Do Language Models need world knowledge for causal inference? *NeurIPS 2022 Workshop on Neuro Causal and Symbolic AI.*

3. **Li, J.,** & Futrell, R. (September, 2022). A decomposition of surprisal predicts N400 and P600 in language processing. Poster at 28th annual conference on Architectures and Mechanisms for Language Processing (AMLaP), York, UK.

4. Xu, W., **Li, J.,** Xiang, M., & Futrell, R. (July, 2022). Syntactic adaptation to short-term cue-based distributional regularities. Poster at the 44th Annual Conference Cognitive Science (CogSci), Toronto, Canada.

5. **Li, J.,** & Futrell, R. (March, 2022). Pre-trained language models can track some ERP components in language processing. Poster at the 35th Annual Conference on Human Sentence Processing (HSP), California [virtual], US.

6. Xu, W., **Li, J.,** & Xiang, M. (March, 2022). Syntactic adaptation to short-term cue-based distributional regularities. Poster at the 35th Annual Conference on Human Sentence Processing (HSP), California [virtual], US.

7. **Li, J.,** & Xiang, M. (March, 2021). The benefits and costs of language prediction: Evidence from ERPs. Short talk at the 34th Annual CUNY Conference on Human Sentence Processing (CUNY), Philadelphia [virtual], US.

8. **Li, J.,** & Ettinger, A. (March, 2021). A noisy channel of N400 and P600 effects in sentence processing. Short talk at the 34th Annual CUNY Conference on Human Sentence Processing (CUNY), Philadelphia [virtual], US.

Teaching

Teaching Assistant at University of California Irvine

- The fundamentals of Psychology (*Spring 2022*)
- Introduction to Linguistics (*Fall 2022*)

Skills

- **Natural languages:** Mandarin (Native), English (Excellent), Japanese (Fluent), Cantonese (Intermediate)
- **Programming languages:** Python, R, MATLAB, Java, HTML, JavaScript
- **Softwares:** EEG, PCIbex, PsychoPy, Praat

Scholarships and Awards

- University of California Irvine Merit Fellowship   2021
- University of Chicago Merit Scholarship   2020
- University of Chicago Merit Scholarship   2019
- HKSAR Government Scholarship Fund   2019
- Undergraduate Summer Research Abroad Scholarship   2018
- Dean's Certificate of Academic Achievement   2017
- Summer Aboard Scholarship   2016

Academic Service

- Member of colloquium Committee   2022
  Language Science Colloquium at University of California Irvine

- Reviewer   2022
  The Conference on Empirical Methods in Natural Language Processing (EMNLP2022), The Conference on Computational Natural Language Learning (CoNLL2022), California Meeting on Psycholinguistics (CAMP2021, CAMP2022), Southern California Natural Language Processing Symposium (SoCalNLP2022)