Yuhan Zhang

Curriculum Vitae

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Contact

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Bio

I am a postdoctoral scholar working with Cory Shain on language and cognitive science at Stanford University. I study the computation underlying language comprehension and verify computational theories using behavioral and neuroimaging data. I take an integrative approach in my study, combining information theory, linguistic theories, Bayesian inference, cognitive psychology / neuroscience, and natural language processing to investigate the nature underlying language processing in humans and machines.

Positions

2024/09 – present	Postdoctoral Scholar Laboratory for Computation & Language in Minds & Brains Department of Linguistics & Affiliation with BIO-X Stanford University

Education

DEGREE SEEKING PROGRAMS

2018 – 2024	Harvard University Ph.D. in Linguistics M.A. in Linguistics Thesis: *The rational processing of language illusions* Co-advisors: Kathryn Davidson, Edward Gibson (MIT) Committee members: Kevin Ryan, Roger Levy (MIT)
2014 – 2018	Tsinghua University B.A. in English Language & Literature

Thesis: *Prediction in the online processing of Mandarin classifier and noun-noun compound*

NON-DEGREE STUDIES

2019 summer	LSA Summer Institute, University of California, Davis
2016 fall	Exchange Program in Linguistics, College of William and Mary
2015 summer	Spanish Language Program, Polytechnic University of Madrid

Honors & Awards

2024	Annual Conference of Human Sentence Processing Travel Award
2024	Harvard IQSS Conference Travel Award
2023	Merit and Beeuwkes Awards (Term-time Merit Scholarship), Harvard University (1-semester stipend)
2022	Certificate of Distinction in Teaching, Harvard College
2019 – 2024	Conference Travel Award, Harvard Linguistics Department
2018	Outstanding Undergraduate Thesis, Tsinghua University
2016 – 2017	Excellence in Academic Performance, Tsinghua University
2015	National Scholarship, Ministry of Education, People's Republic of China (5%)

Research Grants & Fellowship

2023	Dissertation Completion Fellowship, Harvard University (1-year stipend)
2021	Graduate Student Research Grant, The Institute for Quantitative Social Science, Harvard University ($2,250)
2020	Graduate Student Research Grant, The Institute for Quantitative Social Science, Harvard University ($1,160)
2018	Douglas Dillon Fellowship Fund, Harvard University (2-year stipend)
2018	Oxford-Kaifeng Graduate Scholarship, University of Oxford (declined)
2018	Wing Yip Cambridge Scholarship at Churchill College (declined)
2017	Excellent Undergraduate Research Awards, Tsinghua University ($4,000)
2017	Overseas Research Awards, Tsinghua University ($2,000)
2016	Overseas Exchange Scholarship, China Scholarship Council ($6,000)

Industry Experiences

May – Aug 2022	Natural Language Machine Learning Intern, Apple Inc. *Host: David Q Sun, Zidi Xiu* Improving the social conversation system of Siri with machine learning

Mar – Aug 2021   Research Intern, Cognitive Computing Laboratory, Baidu Inc.
Host: Mingming Sun, Xin Wang
Improving open-domain information extraction with Mandarin Chinese
dependency parsing

Publications

IN PROGRESS
1. **Yuhan Zhang** & Edward Gibson. (in prep). A memory-based account of negative polarity illusion.
2. **Yuhan Zhang**, Erxiao Wang & Cory Shain. (under review). Graded strength of comparative illusions is explained by Bayesian inference. [preprint]
3. Masoud Jasbi, Natalia Bermudez, **Yuhan Zhang**, Reka Siro & Kathryn Davidson. (under review). Universality in the interpretation of logical constructions: Evidence from English, Hungarian, Mandarin Chinese, and Spanish.

PEER-REVIEWED JOURNAL ARTICLES
1. **Yuhan Zhang**, Carina Kauf, Roger Levy & Edward Gibson. (2025). Comparative illusions are evidence of rational inference in language comprehension. *Journal of Experimental Psychology*: *General*, *154*(10), 2752–2771. https://doi.org/10.1037/xge0001807
2. **Yuhan Zhang** & Kathryn Davidson. (2024). Interpreting the referential properties of noun phrases in belief reports: the *de re*/*de dicto* competition. *Glossa Psycholinguistics*.
3. **Yuhan Zhang**, Rachel Ryskin, & Edward Gibson. (2023). A noisy-channel explanation to the depth-charge illusion. *Cognition*, 232, 105346.
4. Yihong Gao & **Yuhan Zhang** (2019). Associative group analysis on the psychological meaning of "suicide" – Evidence from Chinese students in five geographically different colleges (in Chinese). *Journal of PLA University of Foreign Languages*, *1*.
5. Yihong Gao & **Yuhan Zhang** (2017). Psychological meanings of "suicide" for Chinese college Students: A semantic differential study (in Chinese). *Discourse Studies Forum*, *4*: 32-52.

PEER-REVIEWED CONFERENCE PROCEEDINGS
1. **Yuhan Zhang**, Edward Gibson & Forrest Davis. (2023). Can language models be tricked by language illusions? Easier with syntax, harder with semantics. *The SIGNLL Conference on Computational Natural Language Learning* (CoNLL).
2. Zidi Xiu, Kai-Chen Cheng, David Q. Sun, Jiannan Lu, Hadas Kotek, **Yuhan Zhang**, Paul McCarthy, Christopher Klein, Stephen Pulman & Jason D. Williams. (2023). Feedback effect in user interaction with intelligent assistants: delayed engagement, adaption and

drop-out. In *Pacific-Asia Conference on Knowledge Discovery and Data Mining* (pp. 145-158).

CONFERENCE PROCEEDINGS WITH PEER-REVIEWED ABSTRACTS

1. Masoud Jasbi, Natalia Bermudez, **Yuhan Zhang**, Reka Siro & Kathryn Davidson. Crosslinguistic consistency in the interpretation of logical connectives: The case of English, Hungarian, Spanish, and Mandarin Chinese. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 45.
2. **Yuhan Zhang**, Wenqi Chen, Ruihan Zhang, & Xiajie Zhang. (2023). Representing affect information in word embeddings. *Experiments in Linguistic Meaning*, *2*, 310-321.
3. **Yuhan Zhang**, & Kathryn Davidson. (2021). De re interpretation in belief reports: An experimental investigation. *Experiments in Linguistic Meaning*, *1*, 310-321.
4. **Yuhan Zhang** (2021). Partial dependency of vowel reduction on stress shift: Evidence from English-ion nominalization. *Supplemental Proceedings of the Annual Meetings on Phonology* (Vol. 8).

Presentations

INVITED TALKS

2026 What can linguistic illusions teach us about language, mind, and machine?
Department of Psychology, University of South Carolina

2025 A rational Bayesian framework of understanding linguistic illusions
Department of Linguistics and Translation, City University of Hong Kong

2025 What can linguistic illusions teach us about meaning, mind, and machine?
Department of Linguistics, University of Southern California

2025 Comparative illusions are instances of rational inference during language comprehension
Construction of Meaning Colloquium, Stanford University

2025 Information theory in human language processing
Beijing Institute of Mathematical Sciences and Applications

2024 A resource-rational account of the negative polarity illusion
Brain Language and Bilingualism Lab, University of Florida

2024 The rational processing of language illusions
Department of Linguistics, Stanford University

2024 The rational processing of language illusions
BU Comp Ling/NLP Reading Group, Boston University

2024 A noisy-channel explanation of the comparative illusion
Language & Cognition Workshop (LangCog), Harvard University

2023 Can LLMs understand language illusions?
Cognitive Computing Laboratory, Baidu Research Institute, Beijing, China

2023 A noisy-channel explanation to the depth-charge illusion

Language Acquisition Lab. Dept. Foreign Languages & Literature, Tsinghua University

2021   Interpreting referential noun phrases in belief reports.
Dept. of Foreign Languages and Literatures, Tsinghua University.

2019   De re interpretation in belief report – An experimental investigation.
Language & Cognition Workshop (LangCog), Harvard University.

ABSTRACT REVIEWED CONFERENCE PRESENTATIONS
_ indicates graduate mentees; [+] indicates undergraduate mentees.

2026

- **Yuhan Zhang**, Advay Aravind[+], <u>Cyn Fang</u>, Edward Gibson & Cory Shain. Processing deep recursive structures in humans and LLMs. *The 39th Annual Conference on Human Sentence Processing*, Massachusetts Institute of Technology. March 26-28. Poster.

2025

- **Yuhan Zhang**, <u>Erxiao Wang</u> & Cory Shain. Graded strength of comparative illusions is explained by Bayesian inference. *The 8th California Meeting on Psycholinguistics*. University of California, Davis. November 14-16, 2025. Talk.
- **Yuhan Zhang**, Advay Aravind[+], <u>Cyn Fang</u>, Edward Gibson & Cory Shain. Processing deep recursive structures in humans and LLMs. *The 8th California Meeting on Psycholinguistics*. University of California, Davis. November 14-16, 2025. Poster.
- **Yuhan Zhang**, <u>Erxiao Wang</u> & Cory Shain. Distance to plausible alternatives predicts acceptability ratings in comparative illusion. *The 38th Annual Conference on Human Sentence Processing*, Maryland. March 27-29. Poster.

2024

- **Yuhan Zhang** & Edward Gibson. A memory-based account for robust negative polarity illusions. *The 37th Annual Conference on Human Sentence Processing*, Michigan. May 16-18. **Plenary talk**. (5%)
- **Yuhan Zhang**, Carina Kauf & Edward Gibson. More linguists have been to LSA than I have: Explaining the comparative illusion from a noisy-channel perspective. *2024 LSA Annual Meeting*, New York, USA. January 4 – 7. Poster (potential talk alternative).

2023

- **Yuhan Zhang**, Edward Gibson & Forrest Davis. Can Language Models Be Tricked by Language Illusions? Easier with Syntax, Harder with Semantics. *The SIGNLL Conference on Computational Natural Language Learning*, Singapore. December 6 – 7. **Talk**.
- **Yuhan Zhang**, Carina Kauf & Edward Gibson. A noisy-channel explanation of comparative illusion. *Architectures and Mechanisms for Language Processing*, San Sebastian, Spain. September 2 – 4. **Plenary talk.**
- Masoud Jasbi, Natalia Bermudez, **Yuhan Zhang**, Reka Siro & Kathryn Davidson. Crosslinguistic consistency in the interpretation of logical connectives: The case of

English, Hungarian, Spanish, and Mandarin Chinese. *Annual Meeting of the Cognitive Science Society*, Sydney, Australia. July 26 – 29. Poster.

- Masoud Jasbi, Natalia Bermudez, **Yuhan Zhang**, Reka Siro & Kathryn Davidson. Crosslinguistic interpretation of logical connectives -- Negation, conjunction, and disjunction in English, Hungarian, and Mandarin Chinese. *The 36th Annual Conference on Human Sentence Processing*, Pittsburgh, PA. March 9 – 11. Poster.
- **Yuhan Zhang**, Jiarui Li[+]. & Lin Bian. Pronoun use reflects gender bias against different occupations. *The 36th Annual Conference on Human Sentence Processing*, Pittsburgh, PA. March 9 – 11. Poster.

2022

- **Yuhan Zhang** & Kathryn Davidson. Competing *de dicto* terms reduce *de re* acceptability. *The 3rd Joint Meeting of the Society for Philosophy and Psychology and the European Society for Philosophy and Psychology*, Milan, Italy. July 19 – 22. **Plenary talk.**
- **Yuhan Zhang**, Wenqi Chen, Ruihan Zhang, & Xiajie Zhang. Affect encoding in word embeddings. *Experiments in Linguistic Meaning 2*, Philadelphia, PA. May 18 – 20. Short talk.
- **Yuhan Zhang** & Kathryn Davidson. Competing *de dicto* terms reduce *de re* acceptability. *Chicago Linguistic Society* (CLS), 58, University of Chicago, Il. April 21 – 24. **Plenary talk.**

2021

- **Yuhan Zhang**, Rachel Ryskin & Edward Gibson. A noisy-channel explanation for depth-charge illusions. *Architectures and Mechanisms for Language Processing* (AMLaP), Université de Paris, France. September 2 – 4. Online. **Plenary talk.**
- **Yuhan Zhang**, Giuseppe Ricciardi & Kathryn Davidson. How many response options in a TVJT? It depends. *The 34th Annual CUNY Conference on Human Sentence Processing*, Philadelphia, PA. March 4 – 6. Short talk.

2020

- **Yuhan Zhang**. Partial dependency of vowel reduction on stress shift – Evidence from English -tion nominalization. *The 2020 Annual Meeting on Phonology*, UC Santa Cruz, CA. Poster.
- **Yuhan Zhang** & Kathryn Davidson. De re interpretation in belief report – An experimental investigation. *Experiments in Linguistic Meaning Conference* (ELM), Philadelphia, PA. Poster.
- **Yuhan Zhang**. Stress shift is proportional and vowel reduction is not deterministic -- a corpus case study of English -*tion* nominalization. *Linguistic Society of America 2020 Annual Meeting*, New Orleans, LA. Poster.

2019

- **Yuhan Zhang** & Peng Zhou. Prediction or processing burden: Online processing of classifier and noun-noun compound in Mandarin. *The 32nd Annual CUNY Conference on Human Sentence Processing*, Boulder, CO. Poster.
- **Yuhan Zhang** & Peng Zhou. Prediction or processing burden: Online processing of classifier and noun-noun compound in Mandarin. The 2nd International Conference on Theoretical East Asian Psycholinguistics, Beijing, China. Poster.

OTHER TALKS

2022   The puzzle of de re acceptability for definite noun phrase. *The Southern New England Workshop in Semantics* (SNEWS), Yale University.

2019   Online processing of Mandarin classifier and noun-noun compound. *ECO-5*, University of Maryland, College Park.

Media Exposure

2024   Invited speaker, TAB Talks (Tsinghua Alumni in Boston Talks)

Research Lab Experiences

2024 –   Laboratory for Computation & Language in Minds & Brains, PI: Cory Shain, Stanford University

2020 – 2024   TedLab, PI: Edward Gibson, Massachusetts Institute of Technology

2018 – 2024   Meaning & Modality Lab, PI: Kathryn Davidson, Harvard University

2017 – 2018   Language Acquisition Lab, PI: Xiaolu Yang, Tsinghua University

2017 summer   Acquisition Lab, PI: Jeffrey Lidz, University of Maryland, College Park

2016 winter   Language & Cognition Lab, PI: Lera Boroditsky, UCSD

Advising & Mentorship

GRADUATE RESEARCH ASSISTANTS

- Erxiao Wang (2024 –, Stanford University)

UNDERGRADUATE RESEARCH ASSISTANTS

- Advay Aravind (2025 spring –, Stanford University)
- Jiarui Li (2022 summer → Undergraduate Study at Vanderbilt University)
- Benazir Neree (2019 fall → Graduate Student in Psychology at Harvard University)

Teaching

COURSE PRINCIPAL INSTRUCTOR

2024 summer	An Introduction to Language Science, Harvard Summer School
2021 fall	Experimental Methodologies in Linguistics, Harvard College

GUEST LECTURE

2025 fall	Computational Psycholinguistics, The University of North Carolina at Chapel Hill
2023 fall	Data Science for Psychology and Neuroscience Majors, University of Maryland, College Park

TEACHING ASSISTANT

2022 spring	Language, Structure, and Cognition Instructor: Adam R. Singerman, Harvard College
2021 fall	The Science of Language: An Introduction Instructor: Yağmur Sağ, Harvard College
2021 spring	The Science of Language: An Introduction Instructor: Kevin Ryan, Harvard College
2020 fall	Language, Structure, and Cognition Instructor: Kathryn Davidson, Harvard College

OTHERS

2016 – 2017	TOEFL Writing for College Students, New Oriental Education Group, Beijing

Service

LEADERSHIP

2024 – 2025	Junior member, Executive Board of the Society for Human Sentence Processing
2022 – 2023	President, Harvard Chinese Students & Scholars Association

ADMINISTRATIVE

2025	Initiator and organizer of HSP online seminar "Computational language models and psycholinguistics"
2023	Conference volunteer, Annual Boston University Conference on Language Development (BUCLD)
2021 – 2022	Harvard Extra-Departmental Representative
2019 – 2021	Organizer, Harvard Linguistics Universals Colloquium

GRANT REVIEWING

2025	Ad-hoc & Panel reviewer for National Science Foundation

JOURNAL REVIEWING

PeerJ, Language & Linguistics Compass, Journal of Memory and Language, Glossa Psycholinguistics

CONFERENCE REVIEWING
Conference for Human Sentence Processing (2026)
Annual Meeting of the Association for Computational Linguistics (2025)
The SIGNLL Conference on Computational Natural Language Learning (2024, 2025)
Architectures and Mechanisms for Language Processing (2024)
Experimental Methods in Natural Language Processing (2023)

Professional memberships

Association for Computational Linguistics
Linguistic Society of America
Society for Human Sentence Processing

Miscellaneous

LANGUAGES	Mandarin (native), English (proficient)
STATISTICS	Entry-level to advanced multilevel modeling
PROGRAMMING	Python, R, Git, Shell, Matlab
EXPERIMENTAL	Qualtrics, jsPsych, PsychToolBox