

# Sihan Chen

PHD CANDIDATE · DEPARTMENT OF BRAIN AND COGNITIVE SCIENCES

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## Education

### Massachusetts Institute of Technology

PHD IN COGNITIVE SCIENCE

- Advisor: Dr. Edward Gibson

Cambridge, MA, United States

September 2020 - present

### University of Miami

BS IN MECHANICAL ENGINEERING

- Minor in Mathematics
- graduated summa cum laude

Coral Gables, FL, United States

January 2016 - December 2019

## Professional Experience

2020 **Assistant Scientist**, SilicoSpine Inc. Miami, FL

2018-2019 **Undergraduate Research Assistant**, Mechanical Engineering, University of Miami

2017-2019 **Peer Tutor**, Camner Academic Resource Center, University of Miami

## Publications

### JOURNAL ARTICLES

1. **Chen, S.**, Gil, D. (equal contributions), Gaponov, S., Reifegeste, J., Yuditha, T., Tatarinova, T., Progovac, L., and Benítez-Burraco, A. (2024), Cognitive and linguistic correlates of societal variation: A quantitative analysis. *PLoS ONE*
2. Benítez-Burraco, A., **Chen, S.**, Gil, D., (2024), The absence of a trade-off between morphological and syntactic complexity, *Frontiers in Language Sciences*
3. Zhan, M., **Chen, S.** (equal contributions), Levy, R., Lu, J., Gibson, E. (2023), Rational Sentence Interpretation in Mandarin Chinese. *Cognitive Science*, 47 (12), e13383
4. **Chen, S.**, Futrell, R., Mahowald, K. (2023), Investigating information-theoretic properties of the typology of spatial demonstratives. *Cognition*, 240, 105505.
5. **Chen, S.**, Nathaniel, S., Ryskin, R., Gibson, E., (2023), The effect of context on noisy-channel sentence comprehension. *Cognition*, 238, 105503.
6. Everett, C., **Chen, S.** (2021), Speech adapts to differences in dentition within and across populations. *Scientific Reports* 11, 1066.
7. Zhu, Q., Gao, X., **Chen, S.**, Gu, W., Brown, M. D., (2020) Effects of Intervertebral Disc Degeneration on Mechanical and Electrical Signals at the Interface between Disc and Vertebra. *Journal of Biomechanics*, 104, 109756.

### CONFERENCE PROCEEDINGS

1. **Chen, S.**, Gibson, E., Ramscar, M. (2024), Availability, informativity and bustiness: Why average corpus measures are an inaccurate guide to surprisal in language. *Proceedings to the 46th Annual Meeting of the Cognitive Science Society*
2. **Chen, S.**, Gil, D., Benítez-Burraco, A., (2024), Languages of esoteric societies provide a window into a previous stage in the evolution of human languages. *Proceedings to the 15th International Conference on the Evolution of Language*, Madison, WI
3. Gil, D., **Chen, S.**, Benítez-Burraco, A., (2024), The Mekong-Mamberamo Mystery. *Proceedings to the 15th International Conference on the Evolution of Language*, Madison, WI
4. **Chen, S.** & Everett, C. (2020), Did Post-Neolithic Changes in Bite Configuration Impact Speech? A New Approach to the Question. *Proceedings to the 13th International Conference on the Evolution of Language*, Brussels, Belgium

## CONFERENCE PRESENTATIONS / POSTERS

1. **Chen, S.**, Benítez-Burraco, A., Cahuana, C., Gil, D., Progovac, L., Reifegerste, J., Yuditha, T., & Tatarinova, T. (2023), Cognitive and genetic correlates of a single macro-parameter of crosslinguistics variation. *Protolang 2023*, Rome, Italy, September 27, 2023
2. **Chen, S.**, Benítez-Burraco, A., Gaponov, S., Gil, D., Progovac, L., Reifegerste, J., Tatarinova, T. (2023), Linking language variation to sociopolitical variation. *Sociotypology: linking language variation to sociological diversity; Workshop at the 56th Annual Meeting of the Societas Linguistica Europaea* Athens, Greece, August 31, 2023
3. Benítez-Burraco, A., **Chen, S.**, Gil, D., Gaponov, S., Reifegerste, J., Yuditha, T., Tatarinova, T., & Progovac, Lj. (2023). Patterns of correlation between linguistic and sociopolitical complexity. Presentation at Complexity in Language Variation and Change 2023. Tokyo, Japan. August 4 2023 [online]
4. Yuditha, T., **Chen, S.**, Benítez-Burraco, A. (2023). Exotericity and Esotericity in Languages of Indonesia: A Preliminary Study. Talk presented at the 26th International Symposium on Malay and Indonesian Linguistics (ISMIL) 26, The University of Hawai'i at Mānoa, April 19, 2023. [online].
5. Washington, L., **Chen, S.**, Gibson, E. (2023), The Influence of Prior Semantic Knowledge in Noisy Channel Interpretation. Poster at the 36th Annual Conference on Human Sentence Processing, Pittsburgh, PA, March 9 2023
6. **Chen, S.**, Conway, B., Gibson, E. (2023), Russian blues do not reveal an effect of language on perception: a reanalysis of the original study. Poster at the 36th Annual Conference on Human Sentence Processing, Pittsburgh, PA, March 9 2023
7. Benítez-Burraco, A., Cahuana, C., **Chen, S.**, Gil, D., Progovac, L., Reifegerste, J., Tatarinova, T. (2022), Cognitive and genetic correlates of a single macro-parameter of crosslinguistics variation. *Joint Conference on Language Evolution*. Kanazawa, Ishikawa, Japan, September 7, 2022
8. Fleming, J., **Chen, S.**, Gibson, E., (2022), Noisy-Channel Sentence Interpretation in Spanish. ABRCMS 2022, Anaheim, CA, November 2022
9. **Chen, S.**, Futrell, R., Mahowald, K. (2022), An information-theoretic approach to the typology of spatial adverbs. *The 4th Workshop on Research in Computational Typology and Multilingual NLP*. Seattle, WA, July 14, 2022
10. **Chen, S.**, Futrell, R., Mahowald, K. (2022), An information-theoretic approach to the typology of spatial adverbs. 35th Annual Conference on Human Sentence Processing. Santa Cruz, CA. March 25, 2022.
11. Zhu, Q., Gao, X., Brown, M. D., **Chen, S.**, Gu, W., (2020), Effects of Intervertebral Disc Degeneration on Mechanical and Electrical Signals at the Interface between Disc and Vertebra. Orthopaedic Research Society 2020 Annual Meeting. New Orleans, LA. February 5, 2020.

## IN REVIEW

1. **Chen, S.**, Washington, L., Gibson, E. (in review), The influence on prior semantic knowledge on noisy-channel interpretation.
2. **Chen, S.**, Gil, D., and Benítez-Burraco, A. (in review). More complex societies have more complex kinship lexicons.
3. Mao, R., **Chen, S.**, Gibson, E. (in review). How do Mandarin native speakers interpret implausible sentences?
4. Ramscar, M., **Chen, S.**, Mahowald, K. (in review), Cross-Cultural Structures Of Personal Name Systems Reflect General Communicative Principles.

## IN PREP

1. **Chen, S.**, Conway, B., Gibson, E. (in prep), Russian blues do not reveal an effect of language on perception: a reanalysis of the data in the original study.
2. **Chen, S.**, Gibson, E., & Ramscar, M. (in prep). Corpus frequency measures fail to capture the dynamic nature of human communicative codes.
3. Yuditha, T., **Chen, S.**, Gil, D., Reifegerste, J., Benítez-Burraco, A. (in prep), Cognitive correlates of the trade-off between morphological and syntactic complexity: the languages of Indonesia as a case study.

## Awards, Fellowships, & Grants

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2020-2022 **Hilibrand Fellowship**, MIT Dept of Brain and Cognitive Sciences  
 2022-2023 **Singleton Fellowship**, MIT Dept of Brain and Cognitive Sciences  
 2024 **Singleton Fellowship**, MIT Dept of Brain and Cognitive Sciences

## Presentations

### INVITED TALKS

March 2024. *Cross-Cultural Structures Of Personal Name Systems Reflect General Communicative Principles*, Cog Lunch, MIT  
 November 2022. *Explaining language complexity from sociopolitical complexity*, Cog Lunch, MIT  
 May 2022. *Winawer et al. (2007) revisited: the role of language on color cognition*, Cog Lunch, MIT  
 December 2021. *Investigating the efficiency of spatial deictic adverbs*, Cog Lunch, MIT

## Teaching Experience

Spring 2023 **Lab in Psycholinguistics (9.59)**, Teaching Assistant MIT  
 Fall 2021 **Computational Cognitive Science (9.66)**, Teaching Assistant MIT  
 Fall 2018, Spring 2019 **Calculus II review session**, Peer Tutor Univ. of Miami

## Mentoring

Summer 2022 **Jorie Fleming**, MSRP Student, Washington University in St Louis Cambridge, MA  
 Summer 2022 **Lia Washington**, Post-Baccalaureate Reserch Scholar, MIT Cambridge, MA

## Outreach & Professional Development

### SERVICE AND OUTREACH

August 2024 **Linguistic typology and the cognitive science of non-WEIRD languagesm, Workshop at the 57th Annual Meeting of the Societas Linguistica Europaea**, Co-organizer Helsinki, Finland

### PEER REVIEW

- 2022: Open Mind, Nature, PNAS

## Media coverage

2023 **Uncovering the invisible pressures shaping language**, MIT News (MIT), <https://news.mit.edu/2023/sihan-chen-uncovering-invisible-pressures-shaping-language-0627>  
 2021 **Scholars link diet, dentition, and linguistics**, NewsTheU (University of Miami), <https://news.miami.edu/stories/2021/01/scholars-link-diet,-dentition,-and-linguistics.html>  
 2019 **In Search for Hidden Worlds**, NewsTheU (University of Miami), <https://news.miami.edu/stories/2019/03/in-search-of-hidden-worlds.html>

## Languages

- Native / bilingual proficiency: Chinese Mandarin, English
- Intermediate: Spanish

- Beginner: Greek
- Programming languages: Python, R, Matlab
- Writing systems: Chinese, Latin, Cyrillic, Greek, Armenian