

# Zhe-chen Guo

✉ zcguo@northwestern.edu

☎ +1 737-465-2930

📍 Frances Searle Building, 2240 Campus Drive, Evanston, IL 60208

🌐 zc-guo.github.io

⚙️ osf.io/4pq2c

🆔 0000-0003-0870-8321

## Academic Appointments

### Postdoctoral Scholar

Department of Communication Sciences and Disorders, Northwestern University  
PI: Bharath Chandrasekaran

Oct. 2023 –

### Visiting Scholar (0% FTE)

Department of Speech, Language, and Hearing Sciences, University of Texas at Austin  
PI: Jun Wang

Sep. 2023 –

## Education

### Ph.D. in Linguistics, University of Texas at Austin

Dissertation: The effects of speaking style, noise, and semantic context on speech segmentation: Evidence from artificial language learning and eye-tracking experiments  
Committee: Rajka Smiljanic (chair), Scott Myers, Fernando Llanos, Georgia Zellou (UC Davis)

2023

### M.A in Applied Linguistics, National Sun Yat-sen University

Thesis: *The cue of rising tone to spoken word segmentation: A study of listeners of Taiwanese Southern Min*  
Committee: Shu-chen Ou (chair), Aleck Shih-wei Chen, Yung-hsiang Shawn Chang

2017

### B.A. in Foreign Languages and Literature, National Sun Yat-sen University

2014

## Publications

### Works in progress:

- McHaney, J. R., **Guo, Z.-C.**, Gnanateja, N. G., Parthasarathy, A., & Chandrasekaran, B. (in review). Neural coding of fundamental frequency and processing of discrete pitch accents in middle-age. *European Journal of Neuroscience*.
- Xiong, S., & **Guo, Z.-C.**, Roark, C. L., Feng, G., & Chandrasekaran, B. (in revision). Dual learning systems in talker identification: The effects of language, accent, and feedback. *Attention, Perception, & Psychophysics*.
- Guo, Z.-C.**, & Smiljanic, R. (in preparation). When top-down meets bottom-up: The interaction of semantic context and clear speech in real-time word segmentation.
- Morton-Jones, M.E., **Guo, Z.-C.**, Bromfield, J., Lee, K., Langenstein, J., & Stein, A. P. (submitted). Outcomes of direct vocal fold testosterone injections in hormone-naïve adults: A feasibility study. *The Laryngoscope*.

### Peer-reviewed journal articles:

- Guo, Z.-C.**, & Chandrasekaran, B. (accepted). Extended high frequency information in automatic speech recognition. *The Journal of the Acoustical Society of America*.
- Xiong, S., **Guo, Z.-C.**, Feng, G., & Chandrasekaran, B. (2025). Dynamic shifts in the use of acoustic cues during talker identification: The role of language familiarity. *JASA Express Letters*, 5(10). 10.1121/10.0039504
- Guo, Z.-C.**, McHaney, J. R., Parthasarathy, A., McFarlane, K. A., & Chandrasekaran, B. (2025). Reduced neural distinctiveness of speech representations in the middle-aged brain. *Neurobiology of Language*, 6, nol\_a\_00169. 10.1162/nol\_a\_00169
- Guo, Z.-C.**, & Smiljanic, R. (2024). Ham or hamster? Eye-tracking evidence of clear speech benefit for word segmentation in quiet and in noise. *Language, Cognition and Neuroscience*, 39(5), 609–631. 10.1080/23273798.2024.2345300

9. **Guo, Z.-C.**, & Smiljanic, R. (2023). Speakers coarticulate less in response to both real and imagined communicative challenges: An acoustic analysis of the LUCID corpus. *Journal of Phonetics*, 97, 101210. 10.1016/j.wocn.2022.101210
10. Ou, S.-C., & **Guo, Z.-C.** (2022). The effect of lengthening aspiration on speech segmentation. *JASA Express Letters*, 2(4), 045202. 10.1121/10.0010242
11. **Guo, Z.-C.**, & Smiljanic, R. (2021). Speaking clearly improves speech segmentation by statistical learning under optimal listening conditions. *Laboratory Phonology*, 12(1), 14. 10.5334/labphon.310
12. **Guo, Z.-C.**, & Ou, S.-C. (2021). The use of tonal coarticulation in segmentation of artificial language speech: A study with Mandarin listeners. *Applied Psycholinguistics*, 42(3), 631–655. 10.1017/S0142716420000818
13. Ou, S.-C., & **Guo, Z.-C.** (2021). The language-specific use of F0 rise in segmentation of an artificial language: Evidence from listeners of Taiwanese Southern Min. *Language and Speech*, 64(2), 437–466. 10.1177/0023830919886604
14. Ou, S.-C., & **Guo, Z.-C.** (2021). The differential effects of vowel and onset consonant lengthening on speech segmentation: Evidence from Taiwanese Southern Min. *The Journal of Acoustical Society of America*, 149(3), 1866–1877. 10.1121/10.0003751
15. **Guo, Z.-C.**, & Ou, S.-C. (2014). Perception of articulatorily different Mandarin retroflexes by Japanese speakers: A pilot study. *NTU Working Papers in Chinese Language Teaching*, 2, 1–28. Taipei: National Taiwan University. 10.6664/NTUTCSL.201408\_(2).0004
16. Ou, S.-C., & **Guo, Z.-C.** (2014). Mandarin retroflex sounds perceived by non-native speakers. *Journal of Language and Literature Studies*, 26, 41–76.

#### Peer-reviewed conference proceedings:

1. **Guo, Z.-C.**, & Chandrasekaran, B. (2025). Extended high-frequency cues to phoneme recognition: Insights from ASR. In *Proceedings of Interspeech 2025* (pp. 1038–1042). 10.21437/Interspeech.2025-1125 (poster presented by Xiong, S., Rotterdam, the Netherlands)
2. Xiong, S., **Guo, Z.-C.**, & Chandrasekaran, B. (2025). Language and accent familiarity effects on the use of acoustic cues in talker identification. In *Proceedings of Interspeech 2025* (pp. 1293–1297). 10.21437/Interspeech.2025-2088 (oral, Rotterdam, the Netherlands)
3. **Guo, Z.-C.**, & Smiljanic, R. (2023). Clear speech facilitates word segmentation: Evidence from eye-tracking. In Radek Skarnitzl & Jan Volín (Eds.), *Proceedings of the 20th International Congress of Phonetic Sciences* (pp. 177–181). Guarant International. (presented orally, Prague, Czech Republic, August 7–11)
4. Ou, S.-C., & **Guo, Z.-C.** (2023). The effect of shortening onset consonants on speech segmentation by Taiwanese Southern Min listeners. In Radek Skarnitzl & Jan Volín (Eds.), *Proceedings of the 20th International Congress of Phonetic Sciences* (pp. 167–171). Guarant International. (poster, Prague, Czech Republic, August 7–11)
5. **Guo, Z.-C.**, & Smiljanic, R. (2021). Speakers coarticulate less when facing real and imagined communicative difficulties: An analysis of read and spontaneous speech from the LUCID corpus. In *Proceedings of Interspeech 2021* (pp. 4009–4013). 10.21437/Interspeech.2021-1640 (presented virtually, Brno, Czech Republic, August 30–September 3)
6. Ou, S.-C., & **Guo, Z.-C.** (2020). The opposite effects of vowel and onset consonant lengthening on speech segmentation. In *Proceedings of the 10th International Conference on Speech Prosody*. 10.21437/SpeechProsody.2020-16 (presented virtually, Tokyo, Japan, May 24–28)
7. **Guo, Z.-C.**, & Ou, S.-C. (2019). The use of tonal coarticulation in speech segmentation by listeners of Mandarin. In *Proceedings of the 19th International Congress of Phonetic Sciences*. (presented orally, Melbourne, Australia, August 4–10)
8. Ou, S.-C., & **Guo, Z.-C.** (2019). The role of initial F0 rise in speech segmentation: A cross-linguistic study. In *Proceedings of the 19th International Congress of Phonetic Sciences*. (poster, Melbourne, Australia, August 4–10)
9. Ou, S.-C., & **Guo, Z.-C.** (2015). The effect of stress on English word recognition by native speakers of typologically different languages. In *Proceedings of the 18th International Congress of Phonetic*

*Sciences.* (presented orally, Glasgow, UK, August 10–14)

## Conference Presentations

\*: listed as citable abstract

1. Langenstein, J., Morton-Jones, M. E., **Guo, Z.-C.**, Bromfield, J., Lee, K., & Stein, A. (2025) Voice outcomes of direct vocal fold testosterone injections in testosterone-naïve individuals: A pilot clinical study. *Fall Voice Conference*. Charlotte, NC.
2. Stanley, K., Wong, D., Kwon, J., **Guo, Z.-C.**, Ferrari, P., Babajani-Feremi, A., & Wang, J. (2025). Neuromagnetic patterns of imagined and overt speech. Paper to be presented at the *69th Annual Convention of Texas Speech-Language-Hearing Association (TSHA)*, May 1–3, San Antonio.
3. **Guo, Z.-C.**, Babajani-Feremi, A., Cao, B., Harwath, D., Ferrari, P., Borna, A., Wang, J. (2024). Identifying speech modalities from neuromagnetic signals using machine learning. Paper to be presented at the *2024 American Speech-Language-Hearing Association (ASHA) Convention*, Seattle, December 5–7.
4. **Guo, Z.-C.**, McHaney, J. R., Xie, Z., & Chandrasekaran, B. (2024). Reduced neural encoding of phonemes in middle-aged adults. Poster presented at the *Advances and Perspectives in Auditory Neuroscience (APAN)* meeting, Chicago, October 4.
5. McHaney, J. R., **Guo, Z.-C.**, Gnanateja, G. N., Parthasarathy, A., & Chandrasekaran, B. (2024). Reduced temporal processing of fundamental frequency in middle-age impacts higher-level linguistic features for speech perception. Poster presented at the *Advances and Perspectives in Auditory Neuroscience (APAN)* meeting, Chicago, October 4.
6. **Guo, Z.-C.**, McHaney, J. R., Xiong, S., & Chandrasekaran, B., & Parthasarathy, A. (2024). Decoding single-trial frequency-following responses to speech stimuli using an animal model. Poster presented at the *2024 Frequency Following Response Workshop*, Chicago, June 12–14.
7. \*Smith, M., **Guo, Z.-C.**, & Smiljanic, R. (2024). Non-native clear speech increases intelligibility but not through improved word segmentation: Evidence from a visual-world eye-tracking study. *The Journal of the Acoustical Society of America*, 155(3\_Supplement), A271–A272. 10.1121/10.0027472 (poster at the *186th Meeting of the Acoustical Society of America*, Ottawa, May 13–17)
8. Ou, S.-C., & **Guo, Z.-C.** (2024). Shorter vowel duration as a potential word segmentation cue: A study with listeners of Taiwanese Southern Min. The *19th Conference on Laboratory Phonology (LabPhon 19)*. (poster presentation, Seoul, South Korea, June 27–29)
9. **Guo, Z.-C.**, & Smiljanic, R. (2023). Clear speech benefit for word segmentation is modulated by contextual-semantic cues: Evidence from eye-tracking. The *Psychonomic Society 64th Annual Meeting*. (poster presentation, San Francisco, California, November 16–19)
10. \***Guo, Z.-C.**, Pangottil, K., Chandrasekaran, B., & Llanos, F. (2023). Decoding speech envelopes from electroencephalographic recordings: A comparison of regularized linear regression and long short-term memory deep neural network. *The Journal of the Acoustical Society of America*, 153(3), A158. 10.1121/10.0018496 (poster at the *184th Meeting of the Acoustical Society of America*, Chicago, May 8–12)
11. \***Guo, Z.-C.**, Smiljanic, R. (2023). Clear speech improves word segmentation in quiet and in noise: Evidence from visual-world eye-tracking. *The Journal of the Acoustical Society of America*, 153(3), A168. 10.1121/10.0018543 (poster at the *184th Meeting of the Acoustical Society of America*, Chicago, May 8–12)
12. \***Guo, Z.-C.**, Smiljanic, R. (2022). Coarticulation is reduced in clear speech produced with protective face masks. *The Journal of the Acoustical Society of America*, 152(4), A286. 10.1121/10.0016295 (poster at the *183rd Meeting of the Acoustical Society of America*, Nashville, December 5–9)
13. Dai, S., Frank, K., Jess, N., **Guo, Z.-C.** (2022). Network effects on Twitter users' language use and issue disposition of CRT: A machine-learning approach investigating the influence model. The *2022 Midwest Sociology of Education Conference* (Indiana, October 27–28).
14. **Guo, Z.-C.**, & Smiljanic, R. (2022). Coarticulatory vowel nasalization in read and listener-directed speech across communicative contexts: An analysis of the LUCID corpus. The *18th Conference on Laboratory Phonology* (presented virtually, June 23–25).

15. Ou, S.-C., & **Guo, Z.-C.** (2022). Is onset-consonant lengthening a universal word beginning cue? A cross-linguistic study of English and French listeners. *The 29th Manchester Phonology Meeting* (presented virtually, May 25–27).
16. **\*Guo, Z.-C.**, & Smiljanic, R. (2022). The degree and time course of nasal coarticulation across communicative contexts: A study of the LUCID corpus. *The Journal of the Acoustical Society of America*, 151(4), A65. 10.1121/10.0010676 (poster at the 182nd Meeting of the Acoustical Society of America, Denver, May 23–27).
17. **\*Guo, Z.-C.**, & Smiljanic, R. (2021). Coarticulation across communicative contexts: An acoustic analysis of the LUCID corpus using spectral and temporal measures. *The Journal of the Acoustical Society of America*, 150(4), A70. 10.1121/10.0007659 (poster at the 181st Meeting of the Acoustical Society of America, Seattle, November 29–December 3)
18. Ou, S.-C., & **Guo, Z.-C.** (2021). The effect of aspiration lengthening on speech segmentation: An artificial language learning study. *The 28th Manchester Phonology Meeting* (presented virtually, May 26–28).
19. **\*Guo, Z.-C.** (2020). Tonal carryover assimilation is exploited as a speech segmentation cue in the case of cue conflict. *The Journal of the Acoustical Society of America*, 148(4), 2504–2504. 10.1121/1.5146952 (presented virtually, December 7–11)
20. Ou, S.-C., & **Guo, Z.-C.** (2020). The effects of segment lengthening on speech segmentation. *The 13th International Symposium on Taiwanese Languages and Teaching* (presented orally, Hsinchu, October 16–17).
21. **\*Guo, Z.-C.**, & Smiljanic, R. (2019). Speaking clearly improves speech segmentation in optimal listening conditions. *The Journal of the Acoustical Society of America*, 146(4), 3052–3052. 10.1121/1.5137579 (poster at the 178th Meeting of the Acoustical Society of America, San Diego, California, December 2–6)
22. Ou, S.-C., & **Guo, Z.-C.** (2018). The role of lexical tone in speech segmentation by listeners of Taiwanese Southern Min: A corpus and experimental study. *The 7th International Conference on Phonology and Morphology* (presented orally, Seoul, Korea, June 29–30).
23. Ou, S.-C., & **Guo, Z.-C.** (2017). The language-specific use of F0 rise in speech segmentation by listeners of Taiwanese Southern Min. *ILAS Workshop on Phonetics and Phonology* (presented orally, Taipei, October 23–24).
24. Ou, S.-C., & **Guo, Z.-C.** (2017). Is the cue of pitch rise to spoken word segmentation used in a language-specific or cross-linguistic way? A study of listeners of Taiwanese Southern Min. *Phonetics and Phonology in Europe 2017* (presented orally, Cologne, Germany, June 12–14).
25. Ou, S.-C., & **Guo, Z.-C.** (2016). The use of lexical tone in spoken word segmentation by Taiwanese Southern Min listeners. *The 24th Annual Conference of the International Association of Chinese Linguistics* (presented orally, Beijing, China, July 17–19).
26. **Guo, Z.-C.** (2014). Perception of articulatorily different Mandarin retroflexes by Japanese speakers: A pilot study. *The 2nd NTU Postgraduate Conference on Teaching Chinese as a Second Language* (presented orally, Taipei, March 29).

## Fellowships, Grants, and Honors

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IPA Student Travel Award for ICPHS 2023 (\$743) International Phonetic Association	2023
University Graduate Continuing Fellowship (\$46,601) Full stipend, tuition, and insurance support for 12 months Graduate School, University of Texas at Austin	2022 – 2023
Taiwanese Overseas Pioneers Grants (\$29,700) National Science and Technology Council, Taiwan	2022 – 2023
Dissertation Fellowship for ROC Students Abroad (\$20,000, declined) Chiang Ching-kuo Foundation for International Scholarly Exchange	2022
Graduate Research Fellowships (\$1,000) British, Irish and Empire Studies (BIES) program, University of Texas at Austin	2022

<b>Interspeech 2021 travel grant (\$141)</b> International Speech Communication Association	2021
<b>Carlota Smith Fellowship (\$1,231)</b> Department of Linguistics, University of Texas at Austin	2020
<b>Government Scholarship to Study Abroad (\$32,000)</b> Ministry of Education, Taiwan	2019 – 2021
<b>Acoustical Society of America Student Travel Subsidies (\$390)</b>	2019 – 2022
<b>Professional Development Awards (\$1,499)</b>	2019
<b>Spring Supplemental Graduate Fellowship (\$5,000)</b> Graduate School, University of Texas at Austin	2019
<b>Candidate for Best Master's Thesis of the Year</b> Linguistic Society of Taiwan	2017
<b>Five-year B.A./M.A. Combined Degree Program Fellowship (\$3,966)</b> Department of Foreign Languages and Literature, National Sun Yat-sen University	2014 – 2015
<b>College Student Research Grant (\$1,421)</b> Ministry of Science and Technology, Taiwan (Project ID: 102-2815-C-110-010-H)	2013 – 2014
<b>NSYSU Excellent Student Award (5 awards, \$992 total)</b>	2011 – 2013

## Research Experience

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<b>Graduate Research Assistant</b> Assistant for Neural Speech Decoding project (full-time: Jul – Aug 2022; PI: Jun Wang) Department of Computer Science, University of Texas at Austin	2022
<b>Graduate Student Lab Member</b> UTSoundLab (PI: Rajka Smiljanic) Department of Linguistics, University of Texas at Austin	2018 – 2023
<b>Research Assistant</b> Assistant (full-time: 2017–2018; part-time: 2013–2017) for NSYSU Phonetics and Phonology Lab (PI: Shu-chen Ou) Department of Foreign Language and Literature, National Sun Yat-sen University	2013 – 2018

## Professional Service

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### Invited talks/workshops/conferences:

<b>NYCU Phon Brown Bag Series</b> Virtual talk at National Yang Ming Chiao Tung University (Dec 16, 2022)	2022
<b>Conference co-organizer</b> The 19th Meeting of the Texas Linguistics Society (Feb 14–15, 2020)	2019 – 2020
<b>Co-lecturer of Workshop on Speech Perception Experiments</b> Led hands-on tutorial on designing perceptual experiments using E-Prime 2.0 (National Chengchi University, Oct 30, 2015)	2015

### Journal/conference reviewer:

*Applied Psycholinguistics* (2023)  
*Language and Speech* (2021, 2024)  
*JASA* (2024, 2025)  
*JASA Express Letters* (2022, 2023)  
*Journal of Phonetics* (2024)  
*Speech Communication* (2024, 2024)  
*Quarterly Journal of Experimental Psychology* (2022, 2023)  
*The 20th International Congress of Phonetic Sciences* (2023)  
*Interspeech* (2024, 2025)  
*PLOS Biology* (2024, co-reviewer)  
*Phonetica* (2025)

## Professional Membership

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International Phonetic Association  
Association for Laboratory Phonology  
Acoustical Society of America  
Psychonomic Society  
International Speech Communication Association  
Society for the Neurobiology of Language

## Teaching Assistantships

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### University of Texas at Austin:

*Exploring Accents*, Scott Myers (Fall 2020)  
*Introduction to the Study of Language*, Nora England (Spring 2019)  
*Sound Patterns: Sound to Word*, Megan Crowhurst (Fall 2018, Spring 2021) and Scott Myers (Fall 2019; Spring 2020, Fall 2021, Spring 2022)

### National Sun Yat-sen University:

*Phonetics*, Shu-chen Ou (Fall 2015, Fall 2016)  
*Phonology in English Language Teaching and Learning*, Shu-chen Ou (Spring 2016)  
*Introduction to English Linguistics (I)*, Shu-chen Ou (Fall 2015)  
*English Writing I*, Shu-chen Ou (Fall 2016, Spring 2016)  
*General English: Intermediate*, Shu-chen Ou (Fall 2016, Spring 2016)

## Technical Skills

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Programming languages	Python, R/R Markdown
Phonetic analysis	Praat/Praat scripting
Experiment builders	E-Prime 2.0/3.0, PsychoPy, Experiment Builder, Gorilla, Paradigm
Eye-tracker	EyeLink Portable Duo
Statistical software	MATLAB, SPSS, SAS
Audio editor	Audacity, GoldWave

## Languages

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Taiwan Mandarin	Native
Taiwanese Southern Min	Native
English	Proficient
Japanese	Beginner