

WEI LAI

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RESEARCH INTERESTS

Phonetics, psycholinguistics; phonetics-phonology interface; sociolinguistics; speech perception and production; speech and communicative disorders; perceptual learning; communication accommodation; experimental linguistics; corpus linguistics; lexical tone; speech prosody

ACADEMIC APPOINTMENT

Postdoctoral Researcher, Vanderbilt University 2021 to current
Department of Psychology and Human Development (advisor: Duane Watson)

EDUCATION

Ph.D. in Linguistics, University of Pennsylvania 2015 to 2021
Dissertation: “The online adjustment of speaker-specific phonetic beliefs in multi-speaker speech perception”
Committee: Meredith Tamminga (chair), Jianjing Kuang, Joseph Toscano

B.A. & M.A. in Chinese Language and Literature, Beijing Normal University 2008 to 2015

PUBLICATIONS

Journal papers

- 2022 | **Wei Lai**, Lacey Wade and Meredith Tamminga. Individual differences in simultaneous perceptual compensation for coarticulatory and lexical cues. *Linguistics Vanguard*. <https://doi.org/10.1515/lingvan-2020-0040>.
- Wei Lai** and Aini Li. Integrating the phonological and phonetic aspects of Mandarin Tone 3 sandhi in auditory sentence disambiguation. *Laboratory Phonology*, 13(1), pp. 1-31.
- 2021 | Lacey Wade, **Wei Lai** and Meredith Tamminga. The reliability of individual differences in VOT imitation. *Language and Speech*, 64(3), pp. 576-593.
- 2020 | **Wei Lai** and Jianjing Kuang. The effect of speaker gender on Cantonese tone perception. *The Journal of the Acoustical Society of America*, 147, no. 6, 4119-4132.
- Wei Lai**, Péter Rácz and Gareth Roberts. Experience with a linguistic variant affects the acquisition of its sociolinguistic meaning: An alien-language-learning experiment. *Cognitive Science*, 44(4), e12832.
- Meredith Tamminga, Robert Wilder, **Wei Lai** and Lacey Wade. Perceptual learning, talker specificity and sound change. *Papers in Historical Phonology*, 5, 90-122.
- 2018 | Jiahong Yuan, **Wei Lai**, Chris Cieri and Mark Liberman. Using Forced Alignment for Phonetics Research. *Text, Speech and Language Technology. Springer*. vol. 51.
- 2017 | Ya Li, Jianhua Tao, **Wei Lai** and Xiaoying Xu. Quantitative intonation modeling of interrogative sentences for Mandarin speech synthesis. *Speech Communication*, 89, 92-102.

- 2015 | Ya Li, Jianhua Tao, Keikichi Hirose, Xiaoying Xu and **Wei Lai**. Hierarchical stress modeling and generation in mandarin for expressive Text-to-Speech. *Speech Communication*, 72, 59-73.

Manuscripts

- 2022 | Esteban Buz, Nichole Dwyer, **Wei Lai**, Duane Watson, and Rene Gifford. Integration of timing and spectral cues to voicing categorization: listeners with normal hearing and bimodal hearing configurations. *Under review*.
- Wei Lai** and Meredith Tamminga. A phonetics-phonology mismatch constraint on the generalization of perceptual learning. *In prep*.

Conference Proceedings

- 2022 | **Wei Lai** and Aini Li. The perceptual generalization of normalized cue distributions across speakers. In *Proc. of CogSci 2022* (pp. 1138-1144).
- Aini Li, **Wei Lai** and Jianjing Kuang. How do listeners identify creak? The case of Mandarin. In *Proc. of Speech Prosody 2022* (pp. 480-484).
- 2020 | **Wei Lai** and Aini Li. Integrating the application and realization of Mandarin 3rd tone sandhi in the resolution of sentence ambiguity. In *Proc. of Interspeech 2020* (pp. 1918-1922).
- 2019 | **Wei Lai**, Mark Liberman and Qianxin He. Compensation for F_0 variation with vocal effort and vowel height in Cantonese tone perception. In *Proc. of International Congress of Phonetic Sciences (ICPhS) 2019*.
- Wei Lai**, Péter Rácz and Gareth Roberts. Unexpectedness makes a sociolinguistic variant easier to learn: An alien-language-learning experiment. In *Proc. of the CogSci 2019* (pp. 604-610).
- 2018 | **Wei Lai**. Voice gender effect on tone categorization and pitch perception. In *Proc. of TAL2018, Sixth International Symposium on Tonal Aspects of Languages* (pp. 103-107).
- 2017 | **Wei Lai**. Auditory-visual integration of talker gender in Cantonese tone perception. In *Proc. of Interspeech 2017* (pp. 664-668).
- 2016 | **Wei Lai**, Mark Liberman, Jiahong Yuan and Xiaoying Xu. Prosodic strength intrinsic to lexical items: A corpus study on tone reduction in Tone4+Tone4 words in Mandarin Chinese. In *Proc. of Chinese Spoken Language Processing (ISCSLP) 2016* (pp. 1-5). IEEE.
- Wei Lai**, Jiahong Yuan, Ya Li, Xiaoying Xu and Mark Liberman. The rhythmic constraint on prosodic boundaries in Mandarin Chinese based on corpora of silent reading and speech Perception. In *Proc. of Interspeech 2016* (pp. 87-91) (*best student paper*) .
- Wei Lai** and Laura Dilley. Cross-linguistic generalization of the distal rate effect: Speech rate in context affects whether listeners hear a function word in Chinese Mandarin. In *Proceedings of Speech Prosody 2016* (vol. 8).
- Wei Lai** and Jianjing Kuang. Prosodic grouping in Chinese trisyllabic structures by multiple cues – coarticulation, tone sandhi and consonant lenition. In *Proc. of Tonal Aspects of Languages 2016* (pp. 157-161).
- Jiahong Yuan, Xiaoying Xu, **Wei Lai** and Mark Liberman. Pauses and pause fillers in Mandarin monologue speech: The effects of sex and proficiency. In *Proc. of Speech Prosody 2016* (pp. 1167-1170).

- 2015 Jiahong Yuan, Xiaoying Xu, **Wei Lai**, Weiping Ye, Xinru Zhao and Mark Liberman. Sentence selection for automatic scoring of Mandarin proficiency. In *Proc. of the Eighth SIGHAN Workshop on Chinese Language Processing* (pp. 21-25).
- 2014 **Wei Lai**, Xiaoying Xu, Ya Li, Hao Che, Shanfeng Liu and Jianhua Tao. Phonological influences on the realization of final lowering: Evidence from dialogue Chinese Mandarin. In *Proc. of Co-ordination and Standardization of Speech Databases and Assessment Techniques (COCOSDA) 2014* (pp. 1-6). IEEE.
- Wei Lai**, Ya Li, Hao Che, Shanfeng Liu, Jianhua Tao and Xiaoying Xu. Final lowering effect in questions and statements of Chinese Mandarin based on a large-scale natural dialogue corpus analysis. In *Proc. of Speech Prosody 2014* (pp. 653-657).
- Ya Li, Jianhua Tao, Keikichi Hirose, **Wei Lai** and Xiaoying Xu. Hierarchical stress generation with Fujisaki model in expressive speech synthesis. In *Proc. of Speech Prosody 2014* (pp. 1032-1036).

PRESENTATIONS

Invited Talks

- 2020 Villanova University. *Coping with habitual and situational speech variability in speech perception*. Psychological & Brain Sciences. Apr 30.
- The Chinese University of Hong Kong. *A psycholinguistic study on Chinese tone variation*. Department of Chinese Language and Literature. Apr 3.
- Saarland University. *Encoding and decoding information through structured speech variability*. Department of Language Science and Technology. Jan 21.

Conference Talks

- 2022 **Wei Lai** and Aini Li. The perceptual generalization of normalized cue distributions across speakers. *The 44th Annual Meeting of the Cognitive Science Society*. Toronto, Canada.
- Aini Li, **Wei Lai** and Jianjing Kuang. How do listeners identify creak? The case of Mandarin. *The 11th International Conference on Speech Prosody*. Lisbon, Portugal.
- Aini Li, **Wei Lai**. A matched-guise study of Mandarin creaky voice. *New Ways of Analyzing Variation (NWAV) 50*. San Jose, CA.
- 2020 **Wei Lai** and Aini Li. Integrating the application and realization of Mandarin 3rd tone sandhi in the resolution of sentence ambiguity. *Interspeech 2020*. Shanghai, China. (virtual).
- 2019 Meredith Tamminga, Lacey Wade and **Wei Lai**. The search for predictors of individual differences in VOT imitation. *New Ways of Analyzing Variation (NWAV) 48*. Eugene, Oregon.
- Wei Lai**, Mark Liberman and Qianxin He. Compensation for F_0 variation with vocal effort and vowel height in Cantonese tone perception. *International Congress of Phonetic Sciences 2019*. Melbourne, Australia.
- Wei Lai**, Péter Rácz and Gareth Roberts. Unexpectedness makes a sociolinguistic variant easier to learn: An alien-language-learning experiment. *The 41st Annual Meeting of the Cognitive Science Society*. Montreal, Canada.
- Wei Lai** and Meredith Tamminga. Individual differences in simultaneous compensation for coarticulatory and lexical cues. *The 5th Workshop on Sound Change*. UC Davis, CA.

- 2019 **Wei Lai**, Péter Rácz and Gareth Roberts. Experience with a linguistic variant affects the acquisition of its sociolinguistic meaning: An alien-language-learning experiment. *93th Annual Meeting of the Linguistic Society of America*. New York City, NY.
- 2018 **Wei Lai**. Gender stereotypes affect the perception of tone and pitch. *New Ways of Analyzing Variation (NWAV) 47*. New York City, NY.
- Wei Lai**, Péter Rácz and Gareth Roberts. Prior experience with a linguistic variant affects the acquisition of its social meaning: An experimental simulation using alien language learning. *New Ways of Analyzing Variation (NWAV) 47*. New York City, NY.
- Wei Lai**. Voice gender effect on tone categorization and pitch perception. *6th International Symposium on Tonal Aspects of Languages*. Berlin, German.
- Wei Lai**. Auditory-visual integration of talker gender in Cantonese tone perception. *The 92th Annual Meeting of the Linguistic Society of America*. Salt Lake City, UT.
- Wei Lai** and Mark Liberman. A rhythmic constraint on prosodic boundaries in Mandarin Chinese based on corpora of silent reading and speech perception. *The 92th Linguistic Society of America*. Salt Lake City, UT.
- Meredith Tamminga, Lacey Wade and **Wei Lai**. Stability and variability in phonetic flexibility. *The 92th Linguistic Society of America*. Salt Lake City, UT.
- 2016 **Wei Lai**, Jiahong Yuan, Ya Li, Xiaoying Xu and Mark Liberman. The rhythmic constraint on prosodic boundaries in Mandarin Chinese based on corpora of silent reading and speech perception. *Interspeech 2016*. San Francisco, CA.
- 2014 **Wei Lai**, Xiaoying Xu, Ya Li, Hao Che, Shanfeng Liu and Jianhua Tao. Phonological influences on the realization of final lowering: Evidence from dialogue Chinese Mandarin. *The 17th Co-ordination and Standardization of Speech Databases and Assessment Techniques*. Phuket, Thailand.

Poster Presentations

- 2022 **Wei Lai**, Sunghye Cho, Mark Liberman, Azia Knox, Alison Russel, Maggie Rose Pelella, Meredith Cola, Kimberly Tena, Juhi Pandey, Robert T. Schultz, and Julia Parish-Morris. Girls with Autism Speed up More in a Tongue Twister Task. *Annual Meeting of the International Society for Autism Research (INSAR)*. Austin, Texas.
- Sunghye Cho, Riccardo Fusaroli, Kimberly Tena, Azia Knox, Maggie Rose Pelella, Judith Miller, Alison Russell, Alison Hulick, Michaela Leuzzi, Ani Nenkova, **Wei Lai**, Jennifer Uzokwe, Kevin Walker, Christopher Cieri, James Fiumara, Juhi Pandey, Christopher Chatham, Robert Schultz, Mark Liberman, Julia Parish-Morris. Children with ASD Describe Pictures Differently Than Matched Non-Autistic Peers. *Annual Meeting of the International Society for Autism Research (INSAR)*. Austin, Texas.
- Aini Li, **Wei Lai** and Jianjing Kuang. How do listeners identify creak? The effects of tone, pitch range, prosodic position and creak locality in Mandarin. *The 96th Annual Meeting of the Linguistic Society of America*. Washington, DC.
- 2020 **Wei Lai** and Aini Li. Integrating phonetic and phonological aspects of Mandarin 3rd tone sandhi in the auditory disambiguation of short and long sentences. *The 17th Conference on Laboratory Phonology*. Vancouver, Canada.
- Wei Lai** and Aini Li. The integration of Mandarin third tone sandhi in auditory sentence disambiguation. *The 33rd Annual CUNY Conference on Human Sentence Processing*, Amherst, Massachusetts.

- 2019 **Wei Lai**. Visual cues facilitate talker-specific perceptual adaptation within gender. *New Ways of Analyzing Variation (NWAV)* 48, Eugene, Oregon.
- 2016 **Wei Lai** and Laura Dilley. Cross-linguistic generalization of the distal rate effect: Speech rate in context affects whether listeners hear a function word in Chinese Mandarin. *The 8th International Conference on Speech Prosody*. Boston, Massachusetts.
- Wei Lai**, Mark Liberman, Jiahong Yuan and Xiaoying Xu. Prosodic strength intrinsic to lexical items: A corpus study on tone reduction in Tone4+Tone4 words in Mandarin Chinese. *The 10th Chinese Spoken Language Processing (ISCSLP)*. Tianjin, China.
- Wei Lai** and Jianjing Kuang. Prosodic grouping in Chinese trisyllabic structures by multiple cues – coarticulation, tone sandhi and consonant lenition. *Tonal Aspects of Languages (TAL) 2016*. Buffalo, NY.
- 2014 **Wei Lai**, Ya Li, Hao Che, Shanfeng Liu, Jianhua Tao and Xiaoying Xu. Final lowering effect in questions and statements of Chinese Mandarin based on a large-scale natural dialogue corpus analysis. *The 7th International Conference on Speech Prosody*. Dublin, Ireland.
- Ya Li, Jianhua Tao, Keikichi Hirose, **Wei Lai** and Xiaoying Xu. Hierarchical stress generation with Fujisaki model in expressive speech synthesis. *The 7th International Conference on Speech Prosody*. Dublin, Ireland.

RESEARCH ASSISTANTSHIP

NSF Grant BCS #1627972, PI Meredith Tamminga

Research Assistant, 2016 - 2020

TEACHING

UPenn CTL (Center for Teaching & Learning) Teaching Certificate

Recipient, December 2020

LING 102 - Introduction to Sociolinguistics

Instructor, Summer 2020

LING 210 - Introduction to Language Change, Prof. Donald Ringe

Teaching Assistant, Spring 2018

LING 001 - Introduction to Linguistics, Prof. Jianjing Kuang

Teaching Assistant, Spring 2017

LING 001 - Introduction to Linguistics, Prof. Jianjing Kuang

Teaching Assistant, Fall 2017

Penn Language Program for International Teaching Assistants

Trainee, June - August, 2016

PROFESSIONAL SERVICE

Review for Journals: *Journal of Memory and Language*, 2022; *Laboratory Phonology*, 2022; *Second Language Research*, 2022; *Advances in Human-Computer Interaction*, 2021; *Reading and Writing*, 2021; *Frontiers in Psychology*, 2021; *The Journal of the Acoustical Society of America*, 2021

Review for Conferences: *Laboratory Phonology*, 17; *Speech Prosody* 2018; Penn Linguistics Conference, 43, 44, 46

Academic Membership: Linguistic Society of America; Acoustic Society of America; Association for Laboratory Phonology; Cognitive Science Society; International Speech Communication Association

Conference Organization Committee: Penn Linguistics Conference 40, 41

AWARDS AND GRANTS

Conference Awards

Workshop of Sound Change 5 Travel Subsidy, NSF Grant #1822522	<i>June 2019</i>
ISCA Travel Grant, International Speech Communication Association	<i>September 2016</i>
★ ISCA Best Student Paper Award at Interspeech 2016	<i>September 2016</i>

School and Department

Graduate Division of Arts and Sciences COVID-19 Funding, UPenn	<i>2020-2021</i>
Benjamin Franklin Fellowship, Department of Linguistics, UPenn	<i>2015-2020</i>
First Class Fellowship, Beijing Normal University	<i>2013-2014, 2010-2011</i>
Second Class Fellowship, Beijing Normal University	<i>2012-2013, 2008-2009</i>

Graduate Student Society

SASGov Travel Grant, SASGov, UPenn	<i>Fall 2018, Spring 2019, Fall 2020</i>
President Gutmann Leadership Award, GAPSA UPenn	<i>August 2019</i>
SAS Deans Travel Subvention, SASGov, UPenn	<i>2017-2019</i>
GAPSA Research Travel Grant, GAPSA, UPenn	<i>Fall 2016</i>

University Research Community

SBSI Small Grant, Social and Behavioral Science Initiative, UPenn	<i>August 2018</i>
SBSI Travel Stipend, Social and Behavioral Science Initiative, UPenn	<i>November 2018</i>
ILST Small Grant, Integrated Language Sciences and Technology, UPenn	<i>December 2018</i>
2nd Class Award in <i>Jingshi Cup</i> Contest of Academic Works, Beijing Normal University	<i>May 2012</i>
3rd Class Award in <i>Jingshi Cup</i> Contest of Academic Works, Beijing Normal University	<i>May 2011</i>

LANGUAGE AND SKILLS

Language	English (working language), Mandarin Chinese (native), Cantonese (research)
Programming	Praat, R, Python, PsychoPy, HTML, CSS, LaTeX