

Miran Oh

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CURRENT POSITION

AI/ML Voice Building Engineer (Korean), Siri Text-To-Speech, Apple Inc., *Seattle, USA*

Oct 2021 – (present)

- Start date: 10/11/2021

- Develop and fine-tune machine learning models used in Text-To-Speech (TTS) text processing and backend TTS models for Siri voices
- Use linguistic and phonetic knowledge and the understanding of Korean prosody to develop high-quality speech systems and models
- Analyze and resolve errors and systematic issues on Siri voices (pronunciation, prosody, naturalness, etc.) in locales including Korean
- Implement innovative ideas directly in the TTS engine and tools to improve the overall quality and user experiences by enhancing naturalness and expressiveness of Siri voices on Apple products

EDUCATION

Ph.D. in Linguistics, University of Southern California, *California, USA*

Dec 2021

- Dissertation Title: Articulatory Dynamics and Stability in Multi-Gesture Complexes

- Advisor: Dani Byrd (dbyrd@usc.edu); Committee members: Dani Byrd, Louis Goldstein, Shrikanth S. Narayanan, and Krishna Nayak

M.A. in Linguistics, University of Southern California, *California, USA*

May 2018

Ph.D. program in Linguistics, Stony Brook University, *New York, USA*

2015 – 2016

M.A. in English Language and Literature (Linguistics), Ewha Womans University, *Seoul, Korea*

Aug 2015

B.A. in English Language and Literature, Ewha Womans University, *Seoul, Korea*

Feb 2013

Exchange program, University of California, Davis, *California, USA*

2011 – 2012

RESEARCH EXPERIENCE

Department of Linguistics, USC

May – Dec 2018, May – Aug 2019

Research assistant, advised by Dani Byrd (dbyrd@usc.edu)

- Analyzed speech data addressing the effect of prosodic modulation on internal linguistic organizations
- Worked on segmentation of articulatory characteristics for varying consonant sequences
- Identified temporal alignment of speech materials and their contrasts with statistical testing using R

Ming Hsieh Department of Electrical and Computer Engineering, USC

May– Aug 2017, 2018, 2019, 2020

Research assistant, advised by Shrikanth S. Narayanan (shri@ee.usc.edu)

- Designed and conducted real-time MRI experiments investigating dynamics and coordination of speech materials
- Developed an object tracking tool for analyzing human vocal tract MRI videos (w/ MATLAB)
- Collected real-time MRI data for Speech Production and Articulation kNnowledge (SPAN) group projects

Department of English Language and Literature, Ewha Womans University

Sep 2014 – Aug 2015

Research assistant, advised by Eunjin Oh (ejoh@ewha.ac.kr)

- Data collection and data analysis for socio-phonetic experiments on interactive speech communication

WORK EXPERIENCE

A TV producer at a broadcasting production shooting a daily sitcom Potato Star 2013QR3, *Media Bom & tvN*

2013 – 2014

An interpreter at 2014 Annual Congress of the International Society of Oncoplastic Endocrine Surgeons (ISOPES), *Busan, Korea*

Jun 2014

An interpreter at 2013 Dasan Conference on Photonic Nanostructure-Based Bio-Detection Technologies, *Seoul, Korea*

Sep 2013

An interpreter at the 35th World Federation of Master Tailors, *Seoul, Korea*

Aug 2013

A tutor for exchange students learning Korean, *Ewha Womans University*

Mar 2012 – Jun 2012

A tutor for native English speakers learning Korean, *UC Davis*

2011 – 2012

SKILLS

Technical MATLAB, R, Python, Praat, C++, SPSS, LATEX

Language Korean (Native), English (Fluent), French (Intermediate)

SELECTED COURSEWORK

Computational Robotics, Computational Linguistics (on neural network), Computational Linguistics (on Python), Computer Programming (C++)

Linguistic Syntax I, Syntax II, Generative Syntax, General Phonetics, Phonology I, Phonology II

RESEARCH INTERESTS

Phonetics, Computational Linguistics, Speech Production and Articulation, Prosody, Speech Imaging

HONORS AND AWARDS

National Science Foundation, Doctoral Dissertation Research Improvement Grant (NSF 2116376), *NSF*

2021

Raymond H. Stetson Scholarship in Phonetics and Speech Science, *Acoustical Society of America*

2021

Morkovin Endowed Fellowship, *USC*

2021

Outstanding Student Presentation Award, *International Seminar on Speech production*

2020

Raymond H. Stetson Scholarship in Phonetics and Speech Science – Honorable Mention, *Acoustical Society of America*

2020

ASA Student Council Representative, *Acoustical Society of America*

2018 – 2020

Graduate Student Affiliate, *Korean Studies Institute, USC*

2017 – 2021

Ph.D. Fellowship in the Social Sciences, *Dornsife College of Letters, Arts and Sciences, USC*

2016

Graduate School Award for Dissertation with Highest Honors, *Ewha Womans University*

2015

REFEREED PUBLICATIONS

Miran Oh. (2021). *Articulatory Dynamics and Stability in Multi-Gesture Complexes*, Doctoral dissertation, University of Southern California.

Miran Oh, Dani Byrd and Shrikanth S. Narayanan. (to appear). Leveraging real-time MRI for illuminating linguistic velum action. In *Proceedings of INTERSPEECH 2021*, Brno, Czech Republic.

Miran Oh, Dani Byrd, Louis Goldstein, and Shrikanth S. Narayanan. (2020). Velum-oral timing and its variability in Korean nasal consonants. In *Proceedings of the 12th International Seminar on Speech Production (ISSP 2020)*, New Haven, CT: Haskins Press.

RESUME

- Yongwan Lim, Asterioa Toutios, Yannick Bliesener, Ye Tian, Sajan Lingala, Colin Vaz, Tanner Sorensen, **Miran Oh**, Sarah Harper, Weiyi Chen, Yoonjeong Lee, Johannes Töger, Mairym Montesserin, Caitlin Smith, Bianca Godinez, Louis Goldstein, Dani Byrd, Krishna Nayak, & Shrikanth S. Narayanan. (Accepted). A multispeaker dataset of raw and reconstructed speech production real-time MRI video and 3D volumetric images. *Nature Scientific Data*. <https://arxiv.org/abs/2102.07896>
- Miran Oh and Dani Byrd. (2019). Syllable-internal corrective focus in Korean. *Journal of Phonetics*, 77, 100933.
- Miran Oh and Yoonjeong Lee. (2018). ACT: An Automatic Centroid Tracking tool for analyzing vocal tract actions in real-time MRI speech production data. *Journal of the Acoustical Society of America—Express Letter*, 144(4), EL290-EL296.
- Miran Oh. (2016). The influence of power relations on English L1 and L2 speakers' oral requests. In *Proceedings of Speech Prosody 2016*, Boston, MA (pp. 965-969).
- Miran Oh. (2015). Lonely negative words in English and Korean. *English Language and Linguistics*, Journal of the ELSOK (English Linguistics Society of Korea), 21(2), 83-100.
- Miran Oh. (2014). A corpus study of overpassivization in Korean EFL learners' writings. *Korean Journal of Applied Linguistics*, 30(3), 179-196.
- Miran Oh. (2014). Adaptation of English liquid loans in Korean: An OT analysis on the distinct patterns of /r/ and /l/. *Language Research*, 50(2), 387-410.

CONFERENCE PRESENTATIONS

- Miran Oh, Louis Goldstein, and Dani Byrd. (Jan 2022). Positional Asymmetries in Intra-Segmental Timing: Variability and Modeling. *Linguistic Society of America*, Washington, DC.
- Miran Oh, Dani Byrd, and Shrikanth S. Narayanan. (Aug 2021). Leveraging real-time MRI for illuminating linguistic velum action. *INTERSPEECH 2021*, Brno, Czech Republic.
- Miran Oh, Dani Byrd, Louis Goldstein, and Shrikanth S. Narayanan. (Dec 2020). Velum-oral timing and its variability in Korean nasal consonants. *The 12th International Seminar on Speech Production* [Received Outstanding Student Presentation Award].
- Miran Oh and Dani Byrd. (Dec 2020). Internal gestural coordination for derived long nasals. *Acoustical Society of America (ASA) 179th Meeting*, Acoustics Virtually Everywhere (AVE).
- Miran Oh and Yoonjeong Lee. (Dec 2020). Focusing on vertical larynx action dynamics. *Acoustical Society of America (ASA) 179th Meeting*, Acoustics Virtually Everywhere (AVE).
- Miran Oh. (Jul 2019). Prosodic modulation and the role of the segmental gestural molecule. *Laboratory Phonology 17*, Vancouver, Canada.
- Miran Oh and Dani Byrd. (Dec 2019). Oral-velum actions in the articulation of nasal juncture geminates and singletons. *Acoustical Society of America (ASA) 178th Meeting*, San Diego, CA.
- Miran Oh and Dani Byrd. (Jun 2019). Focus-induced articulatory prominence on velum actions in nasal geminates. Workshop on Prominence between Cognitive Functions and Linguistic Structures, satellite workshop at Phonetics and Phonology in Europe (PaPE), Bari, Italy.
- Miran Oh, Dani Byrd, Louis Goldstein, and Shrikanth S. Narayanan. (Jun 2019). Vertical larynx actions and larynx- oral timing in ejectives and implosives. 3rd Phonetics and Phonology in Europe (PaPE), Lecce, Italy.
- Miran Oh and Dani Byrd. (May 2019). The prosody of corrective focus and its domain in Korean. *Acoustical Society of America (ASA) 177th Meeting*, Louisville, KY.
- Miran Oh, Dani Byrd, Louis Goldstein, and Shrikanth S. Narayanan. (Nov 2018). Enriching the understanding of glottalic consonant production: Vertical larynx movement in Hausa ejectives and implosives. *Acoustical Society of America (ASA) 176th Meeting*, Victoria, Canada.
- Miran Oh, Asterios Toutios, Dani Byrd, Louis Goldstein, and Shrikanth S. Narayanan. (Dec 2017). Tracking larynx movement in real-time MRI data. *Acoustical Society of America (ASA) 174th Meeting*, New Orleans, LA.
- Miran Oh. (Jun 2016). The influence of power relations on English L1 and L2 speakers' oral requests. *Speech Prosody 8 (SP2016)*, Boston University, Boston, MA.
- Miran Oh. (Jun 2015). Effects of onset on pitch and vowel duration. *The 9th Graduate Seminar of English Language and Literature Association of Korea (ELLAK)*, Yonsei University, Seoul, Korea.
- Miran Oh. (Nov 2014). Sociophonetic variations of English "request" by Korean EFL learners. *The 9th International Conference of English Language and Literature Association of Korea (ELLAK)*, Ewha Womans University, Seoul, Korea.
- Miran Oh. (Sep 2014). Perception of English liquid loans in Korean: An OT analysis on the distinct patterns of /r/ & /l/. *The 9th International Workshop on Theoretical East Asian Linguistics*, University of Nantes, Nantes, France (did not attend).

TEACHING EXPERIENCE

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| Guest Lecturer, CORE 103 The Process of Change in Science: Human Speech, USC | Spring 2020, 2021 & Fall 2020 |
| Teaching Assistant, CORE 103 The Process of Change in Science: Human Speech, USC | Spring 2020, 2021 & Fall 2019 |
| Teaching Assistant, LING 115 Language and Society, USC | Spring 2019 & Fall 2017 |
| Certificate of Completion, Center for Excellence in Teaching, USC | Nov 2018 |
| Teaching Assistant, LING 285 Human Language & Technology, USC | Spring 2018 |
| Guest Lecturer, LIN 301 Phonology, Stony Brook University | Spring 2016 |
| Teaching Assistant, LIN 301 Phonology, Stony Brook University | Spring 2016 |
| Teaching Assistant, LIN 201 Phonetics, Stony Brook University | Fall 2015 |

SERVICE

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| Editorial Secretary, <i>Korean Journal of Linguistics</i> , <i>The Linguistic Society of Korea (LSK)</i> | 2021 |
| Reviewer, <i>Speech Prosody</i> | 2020 – Present |
| Reviewer, <i>The Korean Society of Speech Sciences</i> | 2019 |
| Student Council Member, <i>Acoustical Society of America (ASA)</i> | 2018 – 2020 |
| - Speech Communication Technical Committee representative | |
| President, Korean Graduate Student Association, USC | 2019 – 2020 |
| Colloquium Organizer, Graduate Students in Linguistics, USC | 2019 – 2020 |
| Treasurer, Korean Graduate Student Association, USC | 2018 – 2019 |
| Graduate Student Affiliate, Korean Studies Institute, USC | 2017 – 2021 |
| Event Coordinator, Graduate Students in Linguistics, USC | 2017 – 2018 |