

# CONNOR MAYER

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## Education

- University of California, Los Angeles** In Progress  
Ph.D., Linguistics  
*PhD thesis title:* Formal complexity influences phonological learning:  
Evidence from Uyghur backness harmony  
*Committee:* Bruce Hayes (chair), Kie Zuraw, Tim Hunter, Adam McCollum
- University of California, Los Angeles** 2018  
M.A., Linguistics  
*Master's thesis title:* An algorithm for learning phonological classes from  
distributional information  
*Committee:* Bruce Hayes (chair), Kie Zuraw, Tim Hunter, Pat Keating
- University of British Columbia** 2013  
Bachelor of Computer Science  
Recipient of the UBC CS Department Academic Award of Excellence (BCS)
- University of British Columbia** 2010  
B.A. with Honours in Linguistics, Minor in Japanese  
*Honour's thesis title:* Talking while chewing: Speaker response to natural  
perturbation of speech  
*Advisor:* Bryan Gick
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## Publications

### Peer reviewed articles and proceedings

- Gick, B., Mayer, C., Chiu, C., Widing, E., Roewer-Despres, F., Fels, S., Stavness, I. (under revision). Quantal biomechanical effects in speech postures of the lips. *Journal of Neurophysiology*.
- Mayer, C. (in press). An algorithm for learning phonological classes from distributional similarity. *Phonology*.
- Mayer, C., & Daland, R. (in press). A method for projecting features from observed sets of phonological classes. *Linguistic Inquiry*.
- Mayer, C., & Nelson, M. (2020). Phonotactic learning with neural language models. *Proceedings of the Society for Computation in Linguistics*. Vol. 3. Article 16.
- Gick, B., Chiu, C., Widing, E., Roewer-Despres, F., Mayer, C., Fels, S., & Stavness, I. (2019). Quantal biomechanical effects in speech postures of the lips. In Calhoun, S., Escudero, P., Tabain, M., and Warren, P. (Eds), *Proceedings of the 19th International Congress of Phonetic Sciences, Melbourne, Australia 2019*: Canberra, Australia: Australasian Speech Science and Technology Association Inc., 1749-1753.
- Graf, T., & Mayer, C. (2018). Sanskrit n-Retroflexion is Input-Output Tier-Based Strictly Local. *Proceedings of the 15th SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology*. The Special Interest Group on Computational Morphology and Phonology: Brussels, Belgium, 151-160.

Mayer, C., & Major, T. (2018). A challenge for tier-based strict locality from Uyghur backness harmony. In Foret, A., Kobele, G., and Pogodalla, S. (Eds). *Formal Grammar 2018. FG 2018. Lecture Notes in Computer Science, vol 10950*. Springer, Berlin, Heidelberg. doi: 10.1007/978-3-662-57784-4\_4

Major, T., & Mayer, C. (2018). Towards a phonological model of Uyghur intonation. In K. Klessa, J. Bachan, A. Wagner, M. Karpiński, and D. Śledziński (Eds). *Proceedings of the 9th Speech Prosody International Conference*. doi: 10.21437/SpeechProsody.2018

Mayer, C., Roewer-Despres, F., Stavness, I., & Gick, B. (2017). Do innate stereotypies serve as a basis for swallowing and learned speech movement? *Behavioral and Brain Sciences, 40*. doi:10.1017/S0140525X16001928

Mayer, C., Gick, B., Weigel, T., & Whalen, D.H. (2013). Perceptual Integration of Visual Evidence in the Airstream from Aspirated Stops. *Canadian Acoustics, 41(3)*, 23-27.

Mayer, C., & Gick, B. (2012). Talking while Chewing: Speaker Response to Natural Perturbation of Speech. *Phonetica, 69(3)*, 109-123.

### **Publications refereed by abstract**

Major, T., & Mayer, C. (2019). What indexical shift sounds like: Uyghur intonation and interpreting speech reports. In M. Baird and J. Pesetsky (Eds). *NELS 49: Proceedings of the Forty-Ninth Annual Meeting of the North East Linguistic Society, 2*, 255-264..

Mayer, C., Stavness, I., & Gick, B. (2018). A biomechanical model for infant speech and aerodigestive movements. *Canadian Acoustics, 46(4)*, 30-31.

Mayer, C., Stavness, I., & Gick, B. (2018). A biomechanical model for infant speech and aerodigestive movements. *Journal of the Acoustical Society of America, 144(3)*, Pt. 2: 1963. (published abstract).

Mayer, C., Roewer-Despres, F., Stavness, I., & Gick, B. (2016). Does Swallowing Bootstrap Speech Learning? *Journal of the Canadian Acoustical Association, 44(3)*, 194-195.

Abel, J., Barbosa, A.V., Black, A., Mayer, C., & Vatikiotis-Bateson, E. (2011). The labial viseme reconsidered: Evidence from production and perception. In Y. Laprie and I. Steiner (Eds). *Proceedings of the 9th International Seminar on Speech Production*, 337-344.

Mayer, C. (2010). Voice onset time and the realization of voiced stops in Kwak'wala. In Proceedings of the 45th International Conference on Salish and Neighbouring Languages. *The University of British Columbia Working Papers in Linguistics, 27*, 238-244.

Mayer, C., Gick, B., Weigel, T., & Whalen, D.H. (2010). Perceptual effects of visual evidence of the airstream. *Canadian Acoustics, 38(3)*, 126-127.

Mayer, C., Gick, B. & Ferch, E. (2009). Talking while chewing: Speaker response to natural perturbation of speech. *Canadian Acoustics, 37(3)*, 144-145.

### **Other publications**

Mayer, C., Stavness, I., & Gick, B. (2018). Understanding how we speak using computational models of the vocal tract. Popular version of presentation at 176th Meeting of the Acoustical Society of America. Acoustical Society of America World Wide Press Room.  
<https://acoustics.org/5asc1-understanding-how-we-speak-using-computational-models-of-the-vocal-tract-connor-mayer/>

Mayer, C. (2018). An algorithm for learning phonological classes from distributional similarity (Unpublished master's thesis). University of California, Los Angeles.

## Edited Volumes

Szakay, A., Mayer, C., Rogers, B., Gick, B., & Dunham, J. (Eds.). (2009). *Papers for the Interlocution Conference. Interlocution: Linguistic structure and human interaction*. Vancouver, BC: The University of British Columbia Working Papers in Linguistics, 24.

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## Presentations

(\* indicates presenting author)

### Conference talks

\*Mayer, C., Major, T., & Yakup, M. Conflicting trigger effects in Uyghur backness harmony. Presented at the 5th Workshop on Turkic and languages in contact with Turkic. Newark, Delaware. February 2020.

\*Mayer, C., Gick, B., Chiu, C., Widing, E., Roewer-Despres, F., Fels, S., Stavness, I. Quantal biomechanical effects in speech postures of the lips. Presented at the 19th International Congress of Phonetic Sciences (ICPhS). Melbourne, Australia. August, 2019.

Major, T., & \*Mayer, C. A phonological model of Uyghur intonation. Presented at the ICPhS Satellite Meeting on the Intonational Phonology of Typologically Rare or Understudied Languages. Melbourne, Australia. August, 2019.

\*Mayer, C., & Daland, R. A method for learning features from observed phonological classes. Presented at the 2019 Canadian Linguistics Association Meeting. Vancouver, BC. June, 2019.

\*Mayer, C., Major, T., & Yakup, M. Wug-testing Uyghur vowel harmony: Trigger conflicts, variation, and distance-based decay. Presented at the 27th Manchester Phonology Meeting. Manchester, England. May, 2019.

\*Mayer, C., & Major, T. A challenge for tier-based strict locality from Uyghur backness harmony. Formal Grammar 2018. Sofia, Bulgaria. August, 2018.

\*Mayer, C., Roewer-Despres, F., Stavness, I., & Gick, B. Does swallowing bootstrap speech learning? Acoustics Week in Canada. Vancouver, BC. September, 2016.

Abel, J., Barbosa, A., Black, A., Mayer, C., & \*Vatikiotis-Bateson, E. The labial viseme reconsidered: Evidence from production and perception. The 9th International Seminar on Speech Production. Montreal, QC. June, 2011.

\*Mayer, C., Gick, B., Weigel, T., & Whalen, D.H. Perceptual effects of visual evidence of the airstream. Acoustics Week in Canada. Victoria, BC. October, 2010.

\*Mayer, C., Gick, B., & Ferch, E. Talking while chewing: Speaker response to natural perturbation of speech. Acoustics Week in Canada. Niagara-on-the-Lake, ON. October, 2009.

### Poster presentations

\*Mayer, C., & \*Nelson, M. Phonotactic learning with neural language models. Presented at the third annual meeting of the Society for Computation in Linguistics. New Orleans, LA. January, 2020.

\*Gick, B., & Mayer, C. Tonic activations in speech production. Presented at the 178th Meeting of the Acoustical Society of America. San Diego, CA. December, 2019.

\*Nelson, M., & Mayer, C. Learning and generalizing phonotactics with recurrent neural networks. Presented at the Annual Meeting on Phonology. Stony Brook, NY. October, 2019.

\*Mayer, C., Stavness, I., & Gick, B. A biomechanical model for infant speech and aerodigestive movements. Joint 2018 Acoustics Week in Canada and 176th Meeting of the Acoustical Society of America. Victoria, BC. November, 2018.

Sundara, M., & \*Mayer, C. Modeling developmental changes in infants' discrimination of English vowels. Boston University Conference on Language Development. Boston, MA. November, 2018.

Graf, T., & \*Mayer, C. Sanskrit n-retroflexion is Input-Output Tier-Based Strictly Local. SIGMORPHON 2018. Brussels, Belgium. October, 2018.

\*Mayer, C. An algorithm for learning phonological classes from distributional similarity. Annual Meeting on Phonology. San Diego, CA. October, 2018.

\*Major, T., & Mayer, C. What indexical shift sounds like: Uyghur intonation and interpreting speech reports. North East Linguistics Society. Ithaca, NY. October, 2018.

\*Sundara, M., & \*Mayer, C. Does the developing lexicon constrain infants' learning of English vowels? 2018 International Congress of Infant Studies. Philadelphia, PA. July, 2018.

\*Major, T., & \*Mayer, C. Towards a phonological model of Uyghur intonation. 9th International Conference on Speech Prosody. Poznań, Poland. June, 2018.

\*Sundara, M. & Mayer, C. Does the developing lexicon constrain infants' discrimination of English vowels? Fall Acoustical Society of America meeting in New Orleans. December, 2017.

\*Mayer, C. & Gick, B. Talking while chewing: Speaker response to natural perturbation of speech. Ultrafest V at Haskins Labs, Yale. New Haven, CT. March, 2010.

### **Invited Talks**

\*Major, T., & \*Mayer, C. A preliminary model of Uyghur intonation. Phonetics Circle, UCSB. Santa Barbara, CA. May, 2019.

\*Mayer, C. & Sundara, M. Modeling developmental changes in infants' discrimination of English vowels. Infant Studies Center, University of British Columbia. Vancouver, BC. December, 2018.

\*Mayer, C. Towards a computational model of emergent features. University of British Columbia West African Vowels Project Meeting. Vancouver, BC. October, 2018.

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### ***Employment Record***

#### **UCLA, Los Angeles, CA**

Research Assistant, Department of Linguistics

*September 2017 - July 2018*

Supervisor: Dr. H. Koopman

- Worked on Terraling, a website for managing linguistic datasets
- Performed exploratory data analysis on linguistic data sets
- Fixed bugs in the Ruby on Rails backend

#### **University of British Columbia, Vancouver, BC**

Program Development Consultant. Department of Linguistics.

*June 2016 - July 2016*

Supervisor: Dr. B. Gick.

- Assisted with curriculum and program planning.
- Conducted market research and interviews with industry professionals.
- Wrote funding applications.
- Performed linguistics research.

**Demonware Inc., Vancouver, BC**

Software developer

*April 2013 – June 2016*

- Responsible for developing new scalable and robust online features for AAA video games, helping studios integrate Demonware technology into their games, and maintaining and updating existing Demonware services.
- Titles worked on in this time period include Skylanders Superchargers (title lead), Call of Duty Online (使命召唤Online), Guitar Hero Live, Call of Duty: Black Ops 3, Call of Duty: Advanced Warfare, Skylanders Trap Team, Diablo 3: Ultimate Evil Edition, Transformers: Rise of the Dark Spark (title lead), Call of Duty: Ghosts, and Skylanders Swap Force.

Software development intern

*July 2012 – September 2012*

- Performed research into how router QoS settings apply to and affect video game traffic.

Software development intern

*May 2011 – December 2011*

- Wrote ETL software for the Demonware data warehouse.
- Worked on an internal web application used by Demonware engineers and studios.
- Titles worked on in this time period include Call of Duty: Modern Warfare 3 and Skylanders: Spyro's Adventure.

**University of British Columbia, Vancouver, BC**

NSERC Undergraduate Student Research Assistant. Department of Linguistics.

*Summer 2010*

Supervisor: Dr. E. Vatikiotis-Bateson.

- Wrote scripts in Matlab and Python to automatically extract multiple maximum and minimum peaks from discrete signals and format and tag the expected data for use in R.
- Wrote scripts in Matlab and Python to take the integrals on specified intervals of discrete signals and format and tag the extracted data for use in R.
- Work from this position was used in Abel et al. (2011).

Work Study Assistant. Department of Linguistics

*2008 – 2010*

Supervisor: Dr. B. Gick.

- Designed and ran experiments examining speech perception and production.
- Wrote online quizzes for LING 313, Introduction to Linguistic Phonetics and Speech Science.
- Proofread grant applications and academic papers.
- Helped to organize an academic conference as liaison between speakers and organizers.
- Work from this position was used in Mayer et al. (2013).

NSERC Undergraduate Student Research Assistant. Department of Linguistics.

*Summer 2009*

Supervisor: Dr. B. Gick.

- Designed and ran experiments examining speech perception and production.
- Analyzed experimental ultrasound and acoustic data.
- Work from this position was used in Mayer & Gick (2012).

Graduate Research Assistant. Department of Asian Studies.

*Summer 2009*

Supervisor: Dr. A. Sathaye.

- Worked on a system for archiving and cataloging Asian folklore.

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**Advising  
Experience****Creating a corpus of Spanish vowels***April 2019 – Present*

Co-supervised, with Megha Sundara, one undergraduate research assistant to record, segment, and analyze acoustic data for a corpus of Spanish vowel acoustics.

**Uyghur vowel harmony and prosody, UCLA***January 2019 – Present*

Co-supervised, with Travis Major, five undergraduate research assistants to code, segment, and analyze acoustic data

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**Teaching Experience****Instructor (UCLA)**

Computational linguistics I (LING 185A) *Summer 2019*

**Teaching assistant (UCLA)**

Computational linguistics I (LING 185A), with Dr. Timothy Hunter *Winter 2019*

Introduction to linguistic analysis (LING 20), with Dr. Carson Schütze *Spring 2018*

Experimental phonetics (LING 104), with Dr. Patricia Keating *Winter 2018*

Introduction to general phonetics (LING 103), with Dr. Patricia Keating *Fall 2017*

**Teaching assistant (University of British Columbia)**

Basic algorithms and data structures (CPSC 221), with Dr. Alan Hu *Spring 2013*

Languages of the world (LING 101), with Dr. Strang Burton *Spring 2010*

**Guest lecturer (UCLA)**

Computational linguistics I (LING 185A) *Winter 2019*  
Lecture: A challenge for tier-based strict locality from Uyghur backness harmony

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**Honours**

Social Sciences and Humanities Research Council (SSHRC), Doctoral Fellowship (2017-2021)  
SelfScore Scholarship for International Students (2016)  
UCLA, Graduate Dean's Scholar Award (2016)  
UBC Computer Science Department Academic Award Of Excellence (BCS) (2013)  
UBC, David Macaree Prize in English 301 (2010)  
UBC Trek Excellence Scholarship for Continuing Students (2009)  
UBC, Margaret Lawrence Scholarship in Arts (2008)  
UBC, Timothy Martin Canfield Memorial Scholarship (2008)  
UBC, Trek Excellence Scholarship for Continuing Students (2008)  
UBC, Trek Excellence Scholarship for Continuing Students (2007)  
UBC, Okamatsu Family Scholarship for Japanese Studies (2007)  
UBC, President's Entrance Scholarship (2006)  
Langara College, Leon and Simma Holt Arts and Science Scholarship (2006)

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**Affiliations*****Institutional affiliations***

*Visiting researcher* *2016 - present*  
*Interdisciplinary Speech Research Lab, University of British Columbia*

***Professional organizations***

Member, Association for Computational Linguistics  
Member, Canadian Acoustical Association  
Member, Linguistic Society of America

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**Professional Service**

Head of UCLA linguistics department open house committee	<i>September 2019 - present</i>
Student volunteer, SALT 29	<i>May 2019</i>
Reviewer, Abstracts Review Board Southern California Undergraduate Linguistics Conference	<i>April 2019</i>
Faculty feedback committee member, UCLA	<i>September 2018 - present</i>
Linguistics blog maintainer, UCLA	<i>September 2018 - present</i>
Housing organizer, WCCFL 36	<i>April 20-22, 2018</i>
Food committee, UCLA linguistics department open house	<i>September 2017 - February 2018</i>
Vice president, Graduate Linguistics Circle, UCLA	<i>September 2017 - August 2018</i>
Organizer. Southern California April Meeting on Phonology	<i>May 6, 2017</i>
Linguistics department website committee member, UCLA	<i>January 2017 - present</i>
Organizer. Interlocution Conference, Department of Linguistics, UBC	<i>May 15-17, 2009</i>

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**Computer Experience**

**Languages:** Python, C++, MySQL, C, Java, R, Matlab, Bash, Latex, Javascript, Erlang, Prolog, Haskell, Ruby  
**Source control:** git, SVN  
**Operating Systems:** Windows, OSX, Linux (Ubuntu and Centos)  
**Programs:** Visual Studio, XCode, Eclipse, Praat, ELAN, Palatoglossatron, Edgetrak, Pyscope, Artisynt

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**Languages**

**Native:** English  
**Proficient:** Japanese (JLPT Level 2)  
**Basic:** French, Spanish, Uyghur  
**Fieldwork:** Kwak'wala, Nuu-chah-nulth, Dschang

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**Non-degree training**

<i>European Summer School in Language Logic and Information 2018, Sofia, Bulgaria</i>	<i>August 2018</i>
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