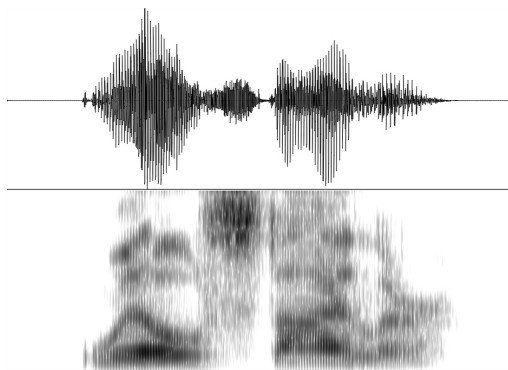


# Dr. Will Styler

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## Current Position

Assistant Teaching Professor (LPSOE), UC San Diego Department of Linguistics, 2018 - Present

### *Past Positions*

Post-Doctoral Research Fellow at the University of Michigan Department of Linguistics, 2015-2018

## Education

Ph.D., Linguistics, University of Colorado at Boulder, 2008-2015.

*Thesis Title: On the Acoustical and Perceptual Features of Vowel Nasality* (Defended March 2015) - [Get PDF](#)

B.A, M.A. in Linguistics, University of Colorado at Boulder, Winter 2008.

*M.A. Thesis Title: Establishing the nature of context in speaker vowel space normalization* - [Get PDF](#)

## Research Interests

*In Acoustic and Articulatory Phonetics:* Speech perception, with an emphasis on variability, normalization, and its role in our perception; The use of machine learning and computational modeling to simulate, predict and explore the human process of speech perception and categorization; perceptual cues and features for vowel perception and vowel nasality; Modeling articulation using Electromagnetic Articulography; experimental technology in phonetics; quantitative and statistical analysis in phonetics.

*In Natural Language Processing:* Processing language and idioms in medicine and medical records; event extraction and temporal reasoning; annotation and representation of temporal semantics; speaker adaptation in automatic speech recognition; the role of inference and domain knowledge in natural language processing.

## Publications

PDFs of publications, where possible, are available on the [Publications page on my website](#).

### Peer-Reviewed

J. Krivokapic, **W. Styler**, B. Parrell. *Pause postures: The relationship between articulation and cognitive processes during pauses*. *Journal of Phonetics* Num. 79, 2020.

A. Coetzee, P.S. Beddor, **W. Styler**, S. Tobin, I. Bekker, D. Wissing. *Producing and perceiving socially indexed coarticulation in Afrikaans*. In *Proceedings of the 19th International Congress of Phonetic Sciences*, Melbourne, August 2019.

P.S. Beddor, A. Coetzee, **W. Styler**, K. McGowan, J. Boland. *The time course of individuals' perception of coarticulatory information is linked to their production: implications for sound change*. *Language*, Vol. 4, Num. 94. 2018.

A. Coetzee, P.S. Beddor, K. Shedden, **W. Styler**, Daan Wissing. *Plosive voicing in Afrikaans: Differential cue weighting and tonogenesis*. *Journal of Phonetics*, 66:185 - 216. 2018.

**W. Styler**. *On the Acoustical Features of Vowel Nasality in English and French*. *Journal of the Acoustical Society of America*. 142(4):2469-2482. Oct. 2017. <http://asa.scitation.org/doi/10.1121/1.5008854>

G. Savova, S. Pradhan, M. Palmer, **W. Styler**, W. Chapman, and N. Elhadad. *Annotating the Clinical Text MiPACQ ShARe SHARpN and THYME Corpora*. In *Handbook of Linguistic Annotations*. Ed. James Pustejovsky and Nancy Ide. Springer. 2017.

R. Scarborough, **W. Styler**, and L. Marques. *Coarticulation and contrast: Neighborhood density conditioned phonetic variation in French*. In *Proceedings of the 18th International Congress of Phonetic Sciences*, Glasgow, Aug. 2015.

**W. Styler**, S. Bethard, S. Finan, M. Palmer, S. Pradhan, P. C. De Groen, B. Erickson, T. Miller, C. Lin, G. K. Savova, and J. Pustejovsky. *Temporal annotation in the clinical domain*. *Transactions of the Association of Computational Linguistics*, 2, 2014.

R. Ikuta, **W. Styler**, M. Hamang, T. O'Gorman, and M. Palmer. *Challenges of adding causation to Richer Event Descriptions*. In *Proceedings of the 2014 ACL EVENT Workshop*. *Association for Computational Linguistics*, June 2014.

W.-T. Chen and **W. Styler**. *Anafora: A web-based general purpose annotation tool*. In *Proceedings of the 2013 NAACL HLT Demonstration Session*, pages 14-19, Atlanta, Georgia, June 2013. *Association for Computational Linguistics*.

D. Albright, A. Lanfranchi, A. Fredriksen, **W. Styler**, C. Warner, J. D. Hwang, J. D. Choi, D. Dligach, R. D. Nielsen, J. Martin, W. Ward, M. Palmer, and G. K. Savova. *Towards comprehensive syntactic and semantic annotations of the clinical narrative*. *Journal of the American Medical Informatics Association*, December 2012.

R. Scarborough, **W. Styler**, and G. Zellou. *Nasal Coarticulation in Lexical Perception: The Role of Neighborhood-Conditioned Variation*. In *Proceedings of the 17th International Congress of Phonetic Sciences*, pages 1-4, Hong Kong, Aug. 2011.

G. K. Savova, S. Bethard, **W. Styler**, J. Martin, and M. Palmer. *Towards temporal relation discovery from the clinical narrative*. In *AMIA Annual Symposium Proceedings*, page 445. AMIA, 2009.

### Non-Peer-Reviewed

**W. Styler**. *A Guide to Online Teaching in the Social Sciences*. Published in Spring 2020 as a resource for remote teaching, and continuously maintained at <http://savethevowels.org/online/>.

**W. Styler**. *Using Unix for Linguistic Research*. Published in December 2019 as a text for the corpus analysis portion of LIGN 6 ('Language and Computers' at UC San Diego, and continuously maintained at <http://savethevowels.org/unix/>).

**W. Styler**. *Using Praat for Linguistic Research*. Published in July 2011 for the 2011 LSA Linguistic Institute's Praat Workshop, and continuously maintained at <http://savethevowels.org/praat/>.

**W. Styler**. (2014) *Speech is an Elaborate Cover for Widespread Telepathy*. *Speculative Grammarian (A Satirical Linguistics Journal)*, Vol. CLXX, No. 4, August 2014 (Available at <http://specgram.com/CLXX.4/09.styler.telepathy.html>)

**W. Styler** (2011). *The EnronSent Corpus*. Technical Report 01-2011, University of Colorado at Boulder Institute of Cognitive Science, Boulder, CO, January 2011.

## Conference Presentations

J. Krivokapic, **W. Styler**, D. Byrd (2020). *The role of speech planning in the articulation of pause postures*. A poster presented at the 12th International Seminar on Speech Production, hosted by Yale and held online due to the COVID-19 Pandemic (December 14th-18th)

J. Zhu, **W. Styler**, I. Calloway (2018). *Automatic Tongue Contour Extraction in Ultrasound Images with Convolutional Neural Networks*. A poster presented at the Meeting of the Acoustical Society of America in Minneapolis, Minnesota (May 7th-11th)

**W. Styler**, J. Krivokapic, B. Parrell, J. Kim (2017). *Using Machine Learning to Identify Articulatory Gestures in Time Course Data*. A poster presented at the Meeting of the Acoustical Society of America in New Orleans, Louisiana (December 4th-8th)

J. Krivokapic, **W. Styler**, B. Parrell, J. Kim (2017). *Pause Postures in American English*. A poster presented at the Meeting of the Acoustical Society of America in New Orleans, Louisiana (December 4th-8th)

**W. Styler** (2017). *Modeling human speech perception using machine learning*. A talk presented at the Linguistic Society of America 2017 meeting in Austin, Texas (January 6th)

**W. Styler** (2016). *Normalizing Nasality? Across-Speaker Variation in Acoustical Nasality Measures*. A poster presented at the Meeting of the Acoustical Society of America in Salt Lake City, Utah (May 23rd-27th)

**W. Styler**, R. Scarborough (2014). *Surveying the Nasal Peak: A1 and P0 in nasal and nasalized vowels*. A poster presented at the Meeting of the Acoustical Society of America in Indianapolis, Indiana (October 26th-29th)

**W. Styler**, R. Scarborough, G. Zellou (2011). *Use of stimulus mixing to synthesize a continuum of nasality in natural speech*. A poster presented at the 162nd Meeting of the Acoustical Society of America in San Diego, California (October 31st-November 4th)

## Invited Talks

**W. Styler** (2021). *Linguistic Problems with Statistic Solutions*. Invited Colloquium talk for the UC Riverside Department of Statistics. (October 12th).

**W. Styler** (2020). *Specialized skills and tools for remote linguistics instruction*. Invited talk for the Linguistics Faculty at the University of Michigan. (July 20th).

**W. Styler** (2019). *Using Transparent Machine Learning to Study Human Speech*. Invited Colloquium talk at UCLA Department of Linguistics. (November 15th).

**W. Styler** (2019). *Machine Learning as a tool in Speech Research*. Invited Colloquium talk at San Diego State University Department of Linguistics. (March 8th).

**W. Styler** (2017). *Ask An Algorithm: Using Machine Learning to study Human Speech*. Invited Colloquium talk at Michigan State University in East Lansing, MI. (September 28th).

**W. Styler** (2017). *A Nose by Any Other Wave: Studying the Perception of Vowel Nasality with Humans and Machines*. Presented as the Paul Efron Distinguished Lecturer at Pomona College (March 24th).

**W. Styler** (2016). *On the Acoustical and Perceptual Features of Vowel Nasality*. Presented at the Northwestern University 'Phonatics' Colloquium (April 27th).

## Honors and Awards

Received the University of Colorado Graduate School's **2012-2013 Graduate Student Teaching Excellence Award**, based on student evaluations, recommendations, and observation in the classroom.

**Graduated with Distinction** for BA degree, maintaining a 3.75 or greater overall GPA, 2008

Named National Residence Hall Honorary **CU Student of the Month** September 2006

## Teaching Experience

### *Instructor, as Assistant Teaching Professor at UC San Diego*

Legend: F=Fall Quarter, W=Winter Quarter, S=Spring Quarter, with the number being the 20\_\_ year.

#### LIGN 42 - Linguistics of Memes (W21, W22)

A course I created and first taught, this course looks at the intersection of the idea of 'memes', their growing online popularity, their many analogies to other forms of human language, and the utility of linguistic analyses and ideas in describing their meaning, functions, and use. First taught as LIGN 47, a Freshman seminar, in Winter 2021.

#### LIGN 6 - Language and Computers (W19, W20, W21, S22)

A course I created and first taught, LIGN 6 is designed to provide an accessible introduction to computational linguistics and natural language processing, using voice-based virtual assistants (e.g. Siri) design as the core 'task' and analyzing each required level of linguistic understanding and analysis.

#### LIGN 101 - Introduction to Linguistics (F18, S19, W20, S20, F20, W21, S21, F21, W22, S22)

An undergraduate introduction to Linguistics, focusing on providing an overview of phonetics, phonology, morphology, syntax, semantics, and pragmatics, while inspiring students to move deeper into the field.

#### LIGN 500 - Linguistics Instructional Assistant Training (F18, F19, F20, F21)

A course I created, LIGN 500 is designed to complement campus-level TA training by introducing important situational, legal, field-specific, and pedagogical information in service of helping graduate students be the best TAs they can be.

#### LIGN 113 - Hearing Science and Hearing Disorders (S20)

A course I created and first taught, LIGN 113 provides students with an introduction to the anatomy and physiology of hearing, along with a clinical perspective on audiological testing and the nature of acquired hearing disorders.

#### LIGN 214 - Speech Perception (F19)

A graduate seminar focused on the human perception of speech from a theoretical and experimental perspective.

#### LIGN 120 - Morphology (S19)

An undergraduate introduction to morphology, focusing both on the analysis of morphological data, and on some of the interesting theoretical issues of the lexicon and of the treatment of morphological variation.

#### LIGN 111 - Phonology (W19)

An undergraduate introduction to phonology, focusing on generative ordered-rule based approach to phonology, heavily focused on data analysis.

### *Workshop Instructor*

*Using machine learning to study human language* - 2018 Great Lakes Expo for Experimental and Formal Undergrad Linguistics

Designed and taught a three hour mini-course discussing the basics of Machine Learning, and its applications as an evaluative, engineering and experimental tool in the study of corpora, speech, and articulation.

*Praat Beyond the Basics: Measurement, Manipulation, Automation, and More* - 2017 Linguistic Society of America Annual Meeting Mini-Course

Designed and taught a four-hour mini-course covering the use of the Praat Phonetics Software Package for more complex tasks like measuring difficult data, sound manipulation, and automated/script-based analysis.

*Using Praat for Linguistic Research* - LSA Linguistic Institute, July 10th and 16th, 2011

Teaching a 4 hour intensive seminar about using the Praat Phonetics Software package for linguistic measurement, sound modification, and Praat scripting. The workshop was repeated twice during the institute (due to high demand), and once again in the Fall of 2011.

*Expect the Unexpected!* - For CU Boulder Graduate Teacher Program, March 11th, August 22nd, and October 7th 2013

An interactive workshop for the general campus audience focused on preparing college-level teachers for a variety of unexpected, uncomfortable, and unpleasant situations that can arise in the course of conducting a class, with the goal of helping teachers manage chaos with confidence. Repeated three times to meet demand.

*Writing Readably and Reading Writably* - For CU Boulder Graduate Teacher Program, January 9th, 2014

A one-hour course for graduate students about writing in an academic setting, as well as purposeful research, all with a focus on writing papers that somebody might, someday, actually want to read.

*LaTeX for Linguists* - At CU Boulder department of Linguistics, November 17th 2012, October 22nd 2013

A 2.5 hour intensive course on the use of the LaTeX typesetting engine for linguistics-related writing and teaching material generation, with special emphasis on bibliography, exam creation, and the proper use of International Phonetic Alphabet (IPA) characters. Repeated by popular demand.

*Putting the LOL in Classroom Learning* - For CU Boulder Graduate Teacher Program, January 21st 2014, September 22nd 2014

A one hour workshop focused on the skillful application of humor in lectures, exams, and assignments, with emphasis on where to draw the line between “funny” and “offensive”.

*Active Harmer Response* - For CU Boulder Graduate Teacher Program, September 16th 2013

A one hour workshop, coordinated with the University of Colorado Police discussing how student instructors should handle active harm situations (such as bomb threats or active shooters) with an emphasis on both ensuring one’s personal safety and on the teacher’s role in promoting student safety.

### *Lead Graduate Teacher for the University of Colorado Department of Linguistics*

Departmental Lead for the development of Graduate Teaching, Academic year 2012-2014

Coordinating departmental graduate teaching, consulting for graduate teachers, and conducting video consultations for new and returning graduate teachers. Also organized and lead the Linguistics Department Teaching intensives for Fall and Spring 2012-2014. Originally hired for 2012-2013, but asked to reprise in 2013-2014. Through the University of Colorado Graduate Teacher Program (<http://gtp.colorado.edu/>).

### *Graduate Instructor-of-Record, University of Colorado at Boulder*

*LING 5030 - Graduate Linguistic Phonetics*, Fall 2011

Planned and taught a graduate-level course focused on a variety of topics in articulatory, acoustic and laboratory phonetics, for a class of 26 incoming graduate students. Tasked with the preparation of two weekly 1.5 hour lectures and a weekly lab session, and all of the homeworks, labs, tests and other materials necessary for the class to function.

*LING 3100 - Language Sound Systems*, Spring 2011, Spring 2012, Fall 2012

Planned and taught a survey of acoustic and articulatory phonetics and phonology to a class of undergraduates. Tasked with preparing and presenting two weekly lectures as well as creating materials for 1 weekly lab, and all of the homework, tests, and other materials necessary for the class to function. Also served as Graduate Teaching Assistant for this course in Spring 2013.

*LING 1020 - Languages of the World*, Fall 2014

Planned and taught an introductory course in linguistics, focused on examining many of the languages and language families in the world with an eye towards typology, patterns, and understanding the link between how languages accomplish communication and how Language in general works.

### *Chair and Coordinator, 2007 CU Stampede First Year Leadership Camp*

2007 CU Stampede First Year Leadership Camp, August 19th-20th 2007

Coordinating, planning, teaching and advising at an intensive orientation/conference for a group of 50 incoming Freshmen.

### *Invited Guest Lecturer*

University of Michigan - LING 512 - Phonetics (Fall 2015, Fall 2016, Fall 2017)

University of Michigan - LING 612 - Advanced Phonetics (Spring 2017)

University of Michigan - LING 209 - Language and Mind (Spring 2015)

University of Colorado - LING 7030 - Phonetic Theory (Fall 2014)

University of Colorado - LING 7800/3800 - Computational Lexical Semantics (Spring 2013, Fall 2013)

University of Colorado - LING 3100 - Language Sound Systems (Spring 2009, Fall 2010, Fall 2011, Spring 2013)

University of Colorado - LING 2000 - Introduction to Linguistics (Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013)

University of Colorado - LING 4220 - Language and Mind (April 2008)

University of Colorado - LING 1000 - Language and US Society (Summer 2011)

### *Student Leadership Mentor, CU Stampede First Year Leadership Camp*

CU Stampede First Year Leadership Camp, 2008-2012

Training a group of 5-10 first year students to get involved on campus and make an effective transition into the new environment at CU during a small training camp at the start of Fall Semester.

### *Invited Program Presenter, CU Stampede First Year Leadership Camp*

CU Stampede First Year Leadership Camp, 2007-2014

*Program:* "Language is magic", a presentation on the beauty, magic, and joy to be found in languages of the world, with emphasis on the improbable nature of human communication. (2013-2014)

*Program:* "Your Writing System is lying to you", an accessible introduction to articulatory phonetics and phonology using examples from English speech, framed as an exploration of the role of passion in leadership. (2007-2012)

*Program:* "The View from the other side of the Desk", a seminar on the lessons for students in a University setting which come from thinking like the instructor. (2011-2014)

## Research Experience

### *University of Michigan, Department of Linguistics*

Post-Doctoral Research Fellow for Jelena Krivokapic, Fall 2016-Summer 2018.

A Post-Doctoral Fellowship, working with Jelena Krivokapic to bootstrap and manage the University of Michigan's EMA (Electromagnetic Articulography) lab, using two Carstens AG501 EMA units to conduct research on articulation, prosody, and gesture. Major responsibilities included operation and maintenance of EMA systems, writing software and scripts for data capture and processing, statistical analysis using R and MATLAB, machine learning for data prediction, as well as the day-to-day management and equipment maintenance for the department's Sound Lab.

Post-Doctoral Research Fellow for Patrice Speeter Beddor and Andries Coetzee, Spring 2015-Summer 2018.

A Post-Doctoral Fellowship, working with Patrice Speeter Beddor and Andries Coetzee on data collection, analysis, and modeling for a grant from the National Science Foundation, titled *The time course of speech perception and production in individual language users*. This involved the implementation of several major experiments utilizing an SR Research Eyelink 1000+ Eye-Tracking System, a Zonare Z.One Ultrasound Machine, optical position tracking, and acoustic recording, as well as the purchase, testing, and deployment of a new nasal airflow capture system. Major responsibilities included data collection, data processing script creation, statistical analysis using R and machine learning methods, as well as the day-to-day management and equipment maintenance for the department's Sound Lab.

### *University of Colorado at Boulder, Department of Linguistics*

Research Assistant to Dr. Rebecca Scarborough, Spring 2008-Spring 2015.

Assisting Dr. Scarborough with phonetic data collection and analysis, along with the design of new computational methods of data analysis and measurement. Particular emphasis on the development of new tools for accurately and quickly analyzing formant and spectral measures in large corpora of data, as well as the computational manipulation of nasality. Working primarily with Praat, Python, SPSS, PsyScope X, PsychoPy and R.

### *University of Colorado at Boulder, Department of Cognitive Science*

Research Assistant and Annotation Supervisor for Dr. Martha Palmer, Spring 2008-Fall 2014.

Assisting and directing various computer language processing and corpus annotation projects. Main projects include the development of a schema for the coding and annotation of temporal relations within medical records (the THYME project) and in the general domain (RED for the DEFT project) and the implementation of the Unified Medical Language System (UMLS) to mark the information desired in clinical questions (MiPACQ).

This position involved training and supervising a team of 10+ annotators as they progressed through a series of annotation tasks using Protege, Knowtator, Jubilee, and other tools, and also led to a role in the development of Anafora, a lightweight annotation tool to replace Protege/Knowtator. This annotation and schema development work has since given rise to two published papers and several awarded grants. This involved collaboration with the Mayo Clinic and Harvard Children's Medical Clinic.

## Academic Service

### *University Service*

Designated Faculty Tech Mentor for Online Transition for Linguistics and Human Developmental Sciences (Winter/Spring 2020)

Aided faculty in Linguistics and HDS with the sudden transition to online teaching during the 2020 COVID-19 Pandemic, focusing on training, course design, and sharing resources and technical support.

### *Reviewer for Journals*

*Language*

*Laboratory Phonology*

*Journal of the Acoustical Society of America*

*Journal of Phonetics*

*Journal of the International Phonetic Association*

*Speech Communication*

*Phonology*

*Clinical Linguistics & Phonetics*



*Journal of West African Languages*

*Linguistics Vanguard*

*Empirical Methods in Natural Language Processing*

### *Corpus Maintainer*

Creator and maintainer of the EnronSent email corpus, 2006-Present

More information available at <http://verbs.colorado.edu/enronsent>

## Technological Competencies

Programming and Scripting in R, Python, Praat, Bash/ZSH Shell, LaTeX, HTML/CSS, and MATLAB

Electromagnetic Articulography using Dual Carstens AG501 EMA systems

Eye Tracking (using SRRResearch EyeLink 1000+)

Statistical Modeling using Linear Mixed Effects Models, GAM, and Bayesian LMER

Machine Learning (using SVMs, RandomForest, PCA, Naive Bayes, Perceptrons, Neural Networks)

Digital Audio Recording/Playback/Signal Processing

Experimental Programming (MATLAB, PsychoPy, ExperimentBuilder, PsyScope X)

Using MATLAB for Data processing, capture, and analysis

Ultrasound for Articulation (Zonare Z.One 3.5, Articulate Assistant Advanced)

Oral/Nasal Airflow Measurement (Glottal Enterprises 'Dualview' System, SQLabs EVA2)

Basic audiological tools (audiometers, calibrated headphones and microphones)

Advanced working proficiency in both macOS and Linux-based Operating Systems

## Human languages

English, Native Speaker

Spanish, Fluent

Russian, Intermediate

French, Beginning, Intermediate fluency in reading

Last updated: October 13, 2021