

Max Nelson

COMPUTATIONAL LINGUIST

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EDUCATION

2022 (expected)	Ph.D. in Linguistics	UNIVERSITY OF MASSACHUSETTS, AMHERST
2020	M.S. in Computer Science Master's Project: <i>Graph-based approaches to phonological feature learning</i>	UNIVERSITY OF MASSACHUSETTS, AMHERST
2015	B.A. in Cognitive Science Minor in Linguistics Departmental Honors Thesis: <i>The Perception of Breathy Voice in Gujarati</i>	INDIANA UNIVERSITY, BLOOMINGTON
2015	B.A. in French Spring 2013 at Université d'Aix-Marseille, Aix-en-Provence, France	INDIANA UNIVERSITY, BLOOMINGTON

POSITIONS

2021	Research Intern, Analytics and Machine Intelligence Research on machine translation of conversational speech in low-resource conditions.	RAYTHEON BBN TECHNOLOGIES
2020	Research Intern, Analytics and Machine Intelligence Research on semi-supervised approaches to audio event classification, detection, and diarization.	RAYTHEON BBN TECHNOLOGIES
2018 - 2019	Research Assistant (Gaja Jarosz) Implementation and test of algorithms for learning phonological hidden structure.	UNIVERSITY OF MASSACHUSETTS AMHERST
2019, 2020	Editor Collect, copy-edit, compile, and publish <i>Proceedings of the Society for Computation in Linguistics</i> .	SOCIETY FOR COMPUTATION IN LINGUISTICS
2018	Editor Collect, copy-edit, compile, and publish <i>Proceedings of North East Linguistic Society</i> .	NORTH EAST LINGUISTIC SOCIETY
2016-2017	Sighted Assistant Read academic articles and interpret figures for a visually impaired Ph.D. candidate in linguistics.	INDIANA UNIVERSITY DISABILITIES SERVICES
2016	Intern Linguist Assist analysis of 4d ultrasound speech data.	LINGUIST LIST
2013-2017	Research Assistant (Kelly Berkson) Write scripts for experiment implementation and analysis.	IU PHONETICS AND PHONOLOGY LAB

PUBLICATIONS

PEER REVIEWED CONFERENCE AND JOURNAL PUBLICATIONS

1. **M. Nelson** (In submission). Revisiting the Abstractness of Underlying Representations. *Phonology*.
2. **Nelson, M.**, H. Dolatian, J. Rawski, B. Prickett (2020). Probing RNN Encoder-Decoder Generalization of Subregular Functions using Reduplication. In *Proceedings of the Society for Computation in Linguistics: Vol. 3*.
3. Mayer, C., **M. Nelson** (2020). Phonotactic Learning with Neural Language Models. To appear in *Proceedings of the Society for Computation in Linguistics: Vol. 3*.
4. Prickett, B., K. Holladay, S. Hucklebridge, **M. Nelson**, R. Bhatt, G. Jarosz, K. Johnson, A. Nazarov, J. Pater (2020). Learning syntactic parameters without triggers by assigning credit and blame. To appear in *The Proceedings of the 55th annual meeting of the Chicago Linguistic Society*.
5. Esposito, C. M., S. U. D. Khan, K. H. Berkson, **M. Nelson** (2020). Distinguishing breathy consonants and vowels in Gujarati. *Journal of South Asian Languages and Linguistics*, 6(2), 215-243.
6. **Nelson, M.** (2019). Word segmentation and UR acquisition with UR constraints. *Proceedings of the Society for Computation in Linguistics: Vol. 2*.
7. Lulich, S. M., M. E. Cavar, **M. Nelson** (2017). Three-dimensional ultrasound images of Polish high front vowels. In *Proceedings of Meetings on Acoustics* 30.

ABSTRACT REVIEWED WORKSHOPS AND WORKING PAPERS

8. **Nelson, M.** (2020). Joint learning of constraint weights and gradient inputs in Gradient Symbolic Computation with constrained optimization. *Proceedings of the 17th SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology at the Annual Meeting of the Association for Computational Linguistics 2020*.
9. **Nelson, M.** (2020). Learning Hierarchical Syntactic Transformations with encoder-decoder networks. Workshop paper at the Bridging AI and Cognitive Science workshop at the International Conference on Learning Representations 2020.
10. Berkson, K., **M. Nelson** (2018). Phonotactic Frequencies in Marathi. *Indiana University Linguistics Club Working Papers*. Vol. 18, No. 2.

PRESENTATIONS

1. **Nelson, M.** (2022). Learned distributional phonological representations predict sonority projection. Talk to be presented at the 96th Annual Meeting of the Linguistic Society of America. Washington D.C.
2. **Nelson, M.**, J. Pater, B. Prickett. (2021). Capturing Phonotactic Learning Biases with a Simple RNN. Poster at The Workshop Cognitive Modeling and Computational Linguistics at North American Chapter of the Association for Computational Linguistics 2021. Mexico City, Mexico (virtual).
3. **Nelson, M.** (2020). Learning Hierarchical Syntactic Transformations with Encoder-Decoder Networks. Paper presented at the Bridging AI and Cognitive Science Workshop at the International Conference on Learning Representations 2020. Addis Ababa, Ethiopia (virtual).
4. **Nelson, M.** (2019). Learning and generalizing phonotactics with recurrent neural networks. Poster at the 7th Annual Meeting on Phonology. Stony Brook, New York.
5. **Nelson, M.** (2019). Revisiting abstract underlying representations: Evidence from a learning model of probabilistic URs. Talk at the 27th Manchester Phonology Meeting. Manchester, United Kingdom.
6. Lulich, S. M., **M. Nelson**, K. de Jong, K. H. Berkson (2017). Anatomically oriented Principal Components Analysis of three-dimensional tongue surfaces. Poster presented at the 3rd joint meeting of the Acoustical Society of America and the European Acoustics Association. Boston, Massachusetts.

7. Cavar, M. E., K. H. Berkson, **M. Nelson**, H. Cruz (2016). Laminar sounds in San Juan Quiahje Chatino: A phonetic and 3D ultrasound study. Poster presented at the 21st Annual Mid-continent Phonetics and Phonology Conference. Michigan State University. East Lansing, Michigan.
8. Lulich, S. M., B. Rhodes, **M. Nelson**, K. H. Berkson, K. de Jong (2016). Three-dimensional tongue shapes of /r/ production in American English words. Poster presented at the 171st meeting of the Acoustical Society of America. Salt Lake City, Utah.

TEACHING

Fall 2020	Introduction to Computational Linguistics Teaching assistant. Instructor: Andrew Lamont	UNIVERSITY OF MASSACHUSETTS AMHERST
Spring 2020	Cognitive Modeling Teaching assistant. Instructor: Gaja Jarosz	UNIVERSITY OF MASSACHUSETTS AMHERST
Fall 2019	Introduction to Linguistic Theory Teaching Assistant. Instructor: Kyle Johnson	UNIVERSITY OF MASSACHUSETTS AMHERST
Spring 2019	Phonology Teaching Assistant. Instructor: Gaja Jarosz	UNIVERSITY OF MASSACHUSETTS AMHERST
Spring 2016	Conversational French Section leader. Supervisor: Kelly Sax	INDIANA UNIVERSITY BLOOMINGTON

SKILLS

PROGRAMMING AND SCRIPTING

Proficient: Python (NLTK, NumPy, PyTorch, HuggingFace, scikit-learn, spaCy)

Familiar: R, Java, MATLAB, Perl

OTHER

Phonetic Transcription, French (proficient), Praat, \LaTeX

RECOGNITION

2016	Provost's Award for Undergraduate Research	INDIANA UNIVERSITY
2016	Outstanding Undergraduate Research Award	DEPT. OF COGNITIVE SCIENCE, INDIANA UNIVERSITY
2015	Undergraduate Research Grant	HUTTON HONORS COLLEGE, INDIANA UNIVERSITY