ANDREW ROBERT PLUMMER

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Research Interests

- ▶ Conceptual foundations of phonological acquisition.
- ▶ Mathematical and computational modeling of phonetic and phonological acquisition.
- ▶ Philosophical foundations and mathematical models of natural language semantics.

Education

- 2014 Ph.D., Linguistics, The Ohio State University. Thesis: The acquisition of vowel normalization during early infancy: Theory and computational framework. Committee: Mary Beckman, Eric Fosler-Lussier, William Schuler.
 2007 Graduate Certificate in Linguistics, Florida International University.
- 2006 M.S., Mathematics, Georgia State University. Thesis: Characterizations in domination theory. Committee: Johannes Hattingh, Guantao Chen, George Davis.
- 2004 B.S., Mathematics, Florida International University.

Grants and Fellowships

- 2010 Targeted Investment in Excellence (TIE) Fellowship (two quarters of support), College of Arts and Sciences, The Ohio State University.
- 2007 Distinguished University Fellowship for Doctoral Studies (first and dissertation years of support), The Ohio State University.
- 2006 Faculty funding for advanced research in graph algorithms (Summer semester), Department of Computer Science, Georgia State University.

Employment

2016– Postdoctoral Researcher in Linguistics. Anneliese Maier Forschungspreis through the Institut für present Phonetik und Sprachverarbeitung, Ludwig-Maximilians-Universität München and the Department of Linguistics, The Ohio State University. (I worked with Mary Beckman on basic research on the emergence of phonological systems at the levels of ontogeny, phylogeny, and cultural transmission.)

Employment (continued)

- 2014– Postdoctoral Researcher. Department of Computer Science and Engineering, The Ohio State 2016 University. (I worked with Eric Fosler-Lussier on the Speech Recognition Virtual Kitchen – www.speechkitchen.org – producing virtual machines and web content. I also taught the course "Survey of Artificial Intelligence II: Advanced Techniques" and co-taught a seminar on speech synthesis in the Linguistics Department with Mary E. Beckman.)
- 2013 Graduate Teaching Assistant, Department of Linguistics, The Ohio State University. (I taught the course "Analyzing the Sounds of Language.")
- 2011 Seed Grant for Interdisciplinary Projects in Cognitive Science (two quarters of support), Center for Cognitive Science, The Ohio State University. (PIs were Mary Beckman, Eric Fosler-Lussier, and Mikhail Belkin. My roles in this grant were that I helped Mary Beckman write the grant application and then worked closely with the PIs to develop the basis model for my dissertation.)
- 2009– Graduate Research Associate, Department of Computer Science and Engineering, The Ohio
 2010 State University. (I worked on National Science Foundation grant no. BCS-0729306, DHB/Collaborative Research: Using machine learning to model the interplay of production dynamics and perception dynamics in phonological acquisition.)
- 2008 Graduate Teaching Assistant, Department of Linguistics, The Ohio State University. (I graded and held office hours for the course "Formal Foundations of Linguistics.")
- 2007 Adjunct Instructor, Mathematics Department, Miami Dade College. (I taught pre-algebra and pre-calculus to matriculated students, and a course on basic math skills to adjudicated minors.)
- 2005– Graduate Research Associate, Department of Mathematics and Statistics, Georgia State Uni-2006 versity. (I graded for the courses "Advanced Matrix Analysis" and "College Geometry." I also contributed to research on graph theory, primarily with my advisor Johannes Hattingh.)

Professional Activities

Service

- Conference Organization: Graduate Coordinator for the Semantics Workshop of the American Midwest and Prairies (SWAMP), Fall Quarter, 2011. Graduate Coordinator for Semantics and Linguistic Theory (SALT) 19, Winter Quarter, 2009.
- Committee Work: Graduate Curriculum Review Committee, Department of Linguistics, The Ohio State University, 2009–2010. Speakers Committee, Student Linguistics Association. The Ohio State University, 2007, 2000.
 - Speakers Committee, Student Linguistics Association, The Ohio State University, 2007–2009.
- ► Reviewing: Article referee for Journal of Phonetics, Speech Communication, Discrete Mathematics, and Discrete Applied Mathematics.

Affiliations

► Speech Sciences and Linguistics: The Acoustical Society of America (ASA) The International Speech Communication Association (ISCA) The North American Association for the History of the Language Sciences (NAAHoLS)

Professional Activities (continued)

► Mathematics and Computer Science: The American Mathematical Society (AMS) The Association for Computing Machinery (ACM) Society for Applied and Industrial Mathematics (SIAM)

Professional Skills

Computer Programming

▶ Mainstream Languages: R, MATLAB, Python, Haskell, Prolog, C. Computational and Statistical Modeling: R, MATLAB. Instructional Software Development: R, MATLAB, Python, Haskell, Prolog. Mark-up and Scripting Languages: HTML, IAT_FX, Python.

Natural Languages

▶ English (native), Spanish (basic conversation and reading).

Peer-reviewed Publications

Journal Articles

- 2015 ► Plummer, A. R. & Beckman, M. E. Framing a socio-indexical basis for the emergence and transmission of phonological systems. *Journal of Phonetics*, **53**, 66-78.
- 2010 ► Hattingh, J. H., Jonck, E., Joubert, E. J., & Plummer, A. R. Total restrained domination in unicyclic graphs. *Utilitas Mathematica*, 82, 81-95.
 - Hattingh, J. H., & Plummer, A. R. A note on restrained domination in trees. Ars Combinatoria, 94, 477-483.
- 2009 ► Hattingh, J. H., Joubert, E. J., Loizeaux, M., Plummer, A. R., & van der Merwe, L. Restrained domination in unicyclic graphs. *Discussiones Mathematicae Graph Theory*, 29, 71-86.
- 2008 ► Hattingh, J. H., Jonck, E., Joubert, E. J., & Plummer, A. R. Nordhaus-Gaddum results for restrained domination and total restrained domination in graphs. *Discrete Mathematics*, **308**, 1080-1087.
 - ▶ Hattingh, J. H. & Plummer, A. R. Restrained bondage in graphs. *Discrete Mathematics*, **308**, 5446-5453.
 - ▶ Xing, H.-M., Hattingh, J. H., & Plummer, A. R. On the domination number of Hamiltonian graphs with minimum degree six. *Applied Mathematics Letters*, **21**, 1037-1040.
- 2007 ► Hattingh, J. H., Jonck, E., Joubert, E. J., & Plummer, A. R. Total restrained domination in trees. *Discrete Mathematics*, **307**, 1643-1650.
 - Plummer, A. R. S4 enriched multimodal categorial grammars are context-free. Theoretical Computer Science, 388, 173-180. Corrigendum. (2008). Theoretical Computer Science, 403, 406-408.

Conference Proceedings

Sub. ► Andrew R. Plummer & Mary E. Beckman. Sharing speech synthesis software for research and education within low-tech and low-resource communities. *INTERSPEECH 2016*.

Peer-reviewed Publications (continued)

- 2015 ► Bagchi, Deblin, Michael I. Mandel, Zhongqiu Wang, Yanzhang He, Andrew R. Plummer, & Eric Fosler-Lussier. Combining spectral feature mapping and multi-channel model-based source separation for noise-robust automatic speech recognition. Proc. of the 2015 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU 2015).
 - ▶ Metze, Florian, Eric Riebling, Eric Fosler-Lussier, Andrew R. Plummer, & Rebecca Bates. The Speech Recognition Virtual Kitchen Turns One. Proc. of the 16th Annual Conference of the International Speech Communication Association (INTERSPEECH 2015).
- 2014 ► Plummer, Andrew R., Eric Riebling, Anuj Kumar, Florian Metze, Eric Fosler-Lussier, & Rebecca Bates. The Speech Recognition Virtual Kitchen: Launch Party. Proc. of the 15th Annual Conference of the International Speech Communication Association (INTERSPEECH 2014).
- 2013 ► Plummer, Andrew R., Lucie Ménard, Benjamin Munson, & Mary E. Beckman. Comparing vowel category response surfaces over age-varying maximal vowel spaces within and across language communities. Proc. of the 14th Annual Conference of the International Speech Communication Association (INTERSPEECH 2013).
- 2012 ► Plummer, Andrew R. Aligning manifolds to model the earliest phonological abstraction in infantcaretaker vocal imitation. Proc. of the 13th Annual Conference of the International Speech Communication Association (INTERSPEECH 2012).
 - ▶ Plummer, Andrew R. & Carl J. Pollard. Agnostic possible worlds semantics. Proc. of the seventh edition of the international conference on Logical Aspects of Computational Linguistics (LACL 2012).
- 2010 ► Plummer, Andrew R., Mary E. Beckman, Mikhail Belkin, Eric Fosler-Lussier, & Benjamin Munson. Learning speaker normalization using semisupervised manifold alignment. Proc. of the 11th Annual Conference of the International Speech Communication Association (INTERSPEECH 2010).

Presentations

Invited Talks

- 2016 ► "Formulating the earliest dynamic aspects of phonological acquisition." Workshop on Speech dynamics, social meaning, and phonological categories at The 15th Conference on Laboratory Phonology (LabPhon 2016), Ithaca, New York, Jul. 13, 2016.
- 2015 ► "The speech recognition virtual kitchen: Infrastructure for the exchange and preservation of speech research and education technology." Institute of Phonetics and Speech Processing at the Ludwig-Maximilians-Universität München, Munich, Germany, Oct. 15, 2015.
 - ▶ "Building individual age-varying models of vowel categorization across language communities." Institute of Phonetics and Speech Processing at the Ludwig-Maximilians-Universität München, Munich, Germany, Oct. 14, 2015.
- 2014 ► "Modeling gestural coordination in infant-caregiver dyads in the earliest stages of phonological acquisition." Workshop on gestural coordination within and between speakers in first language phonological acquisition at The 14th Conference on Laboratory Phonology (LabPhon 2014), Tokyo, Japan, Jul. 28, 2014.
 - ▶ "Investigating the relationship between age, gender, and vowel categorization within and across languages: A comparison of Cantonese, English, and Japanese." *The 2nd Workshop on Innovations in Cantonese Linguistics (WICL 2)*, Chicago, IL, Mar. 7, 2014. (with Benjamin Munson)

Presentations (continued)

2013 ► "Prerequisites for computational models of the early emergence of phonological categories." Graduate Institute of Linguistics, National Chung Cheng University, Chia-Yi, Taiwan, Mar. 15, 2013. (with Mary E. Beckman)

Posters, etc.

- 2015 ► Plummer, Andrew R. Using the speech recognition virtual kitchen infrastructure for reproducible cross-disciplinary speech research exchange. 169th Meeting of the Acoustical Society of America, Pittsburgh, PA, May 19, 2015.
- 2014 ► Plummer, Andrew R. Modeling the emergence of cognitive structures for the acquisition of vowel dynamics during early infancy using manifold alignment. Workshop on gestural coordination within and between speakers in first language phonological acquisition at The 14th Conference on Laboratory Phonology (LabPhon 2014), Tokyo, Japan, Jul. 28, 2014.
 - ▶ Plummer, Andrew R. Modeling the acquisition of vowel normalization as cognitive manifold alignment. *The 14th Conference on Laboratory Phonology (LabPhon 2014)*, Tokyo, Japan, Jul. 25, 2014.
 - ▶ Plummer, Andrew R. A virtual environment for modeling the acquisition of vowel normalization. 167th Meeting of the Acoustical Society of America, Providence, RI, May 8, 2014.
- 2013 ► Plummer, Andrew R. Graph alignment and cross-modal learning during early infancy. 166th Meeting of the Acoustical Society of America, San Francisco, CA, Dec. 6, 2013.
 - ▶ Plummer, Andrew R., Benjamin Munson, Lucie Ménard, & Mary E. Beckman. Examining the relationship between the interpretation of age and gender across languages. 21st International Congress on Acoustics, 165th Meeting of the Acoustical Society of America, 52nd Meeting of the Canadian Acoustical Society (ICA 2013), Montréal, Québec, CA., Jun. 4, 2013.
 - ▶ Plummer, Andrew R. Aspects of modeling the learning of vowel normalization. Workshop on Current Issues and Methods in Speaker Adaptation (CIMSA), Columbus, OH, Apr. 7, 2013.
 - ▶ Plummer, Andrew R. & Carl J. Pollard. Bolzano-Lewis possible worlds semantics: An improvement over its successors. The North American Association for the History of the Language Sciences at the Annual Meeting of the Linguistic Society of America (NAAHoLS at LSA 2013), Boston, MA, Jan. 4.
- 2012 ► Plummer, Andrew R. Manifold alignment, vocal imitation, and the perceptual magnet effect. The Annual International Child Phonology Conference (ICPC 2012), Minneapolis, MN, June 5.
 - ▶ Plummer, Andrew R. Galen's critique of rationalism and empiricism, and its relevance for modern linguistics. The North American Association for the History of the Language Sciences at the Annual Meeting of the Linguistic Society of America (NAAHoLS at LSA 2012), Portland, OR, Jan. 8.
- 2006 ► Plummer, Andrew R. Nordhaus-Gaddum Results for Restrained Domination and Total Restrained Domination in Graphs. *The 19th Cumberland Conference on Combinatorics, Graph Theory, and Computing*, Johnson City, TN, May 20. (with Johannes H. Hattingh, Elizabeth Jonck, & Ernst J. Joubert)
 - ▶ Plummer, Andrew R. Total Restrained Domination in Trees. The 37th Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, March 8. (with Johannes H. Hattingh, Elizabeth Jonck, & Ernst J. Joubert)