

Dave F. Kleinschmidt

Research interests

Sensation and perception in a non-stationary world. My work uses behavioral, computational, and neural approaches to understand how sensory systems deal with semi-predictable variability across contexts. I am particularly—but not exclusively—interested in speech and language.

Education

- 2010–present **Ph.D. Brain and Cognitive Sciences**, *University of Rochester*, Rochester, NY.
Advisors: T. Florian Jaeger (primary), Rajeev Raizada
- 2005–2009 **BA Mathematics, concentration Cognitive Science**, *Williams College*, Williamstown, MA,
Summa cum laude, highest honors in Cognitive Science.
Senior thesis advisor: Safa Zaki

Publications

Papers

- 2015 **Kleinschmidt, D. F.**, Jaeger, T. F., Robust speech perception: Recognize the familiar, generalize to the similar, and adapt to the novel. *Psychological Review*, 122(2). doi:10.1037/a0038695
- 2014 Salverda, A. P., **Kleinschmidt, D. F.**, Tanenhaus, M. K., Immediate effects of anticipatory coarticulation in spoken-word recognition. *Journal of Memory and Language*, 71(1), 145–163. doi:10.1016/j.jml.2013.11.002
- Zaki, S. R., **Kleinschmidt, D. F.**, Procedural memory effects in categorization: Evidence for multiple systems or task complexity? *Memory & cognition*, 42(3), 508–24. doi:10.3758/s13421-013-0375-9
- 2011 Croft, W., Bhattacharya, T., **Kleinschmidt, D. F.**, Smith, D. E., Jaeger, T. F., Greenbergian universals, diachrony, and statistical analyses. *Linguistic Typology*, 15(2), 433–453. doi:10.1515/LITY.2011.029

Conference Proceedings Papers

- 2015 **Kleinschmidt, D. F.**, Raizada, R., Jaeger, T. F., Supervised and unsupervised learning in phonetic adaptation. In R. Dale, C. Jennings, P. Maglio, T. Matlock, D. Noelle, A. Warlaumont, & J. Yoshimi (Eds.), *Proceedings of the 37th annual conference of the cognitive science society*. Austin, TX: Cognitive Science Society.
- 2012 **Kleinschmidt, D. F.**, Fine, A. B., Jaeger, T. F., A belief-updating model of adaptation and cue combination in syntactic comprehension. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th annual conference of the cognitive science society* (pp. 599–604). Austin, TX: Cognitive Science Society.
- Kleinschmidt, D. F.**, Jaeger, T. F., A continuum of phonetic adaptation: Evaluating an incremental belief-updating model of recalibration and selective adaptation. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th annual conference of the cognitive science society* (pp. 605–10). Austin, TX: Cognitive Science Society.

- 2011 **Kleinschmidt, D. F.**, Jaeger, T. F., A Bayesian belief updating model of phonetic recalibration and selective adaptation. In *Proceedings of the 2nd ACL workshop on cognitive modeling and computational linguistics*. Stroudsburg, PA: Association for Computational Linguistics.

Submitted and in preparation

- submitted **Kleinschmidt, D. F.**, Jaeger, T. F., *A re-evaluation of selective adaptation: Fatiguing feature detectors, or distributional learning?*

Pajak, B., Fine, A. B., **Kleinschmidt, D. F.**, Jaeger, T. F., *Learning additional languages as hierarchical inference: Insights from L1 processing*. Manuscript submitted for publication.

Presentations

- 2015 **Kleinschmidt, D. F.**, Jaeger, T. F., Raizada, R., *Informativity in adaptation: supervised and unsupervised learning of linguistic cue distributions*. Poster presented at the 28th Annual CUNY Sentence Processing Conference, Los Angeles, CA.
- 2014 Jaeger, T. F., **Kleinschmidt, D. F.**, *Efficient language understanding in a variable world: prediction and adaptation*. Talk jointly presented at the 21st Annual Meeting of the Cognitive Neuroscience Society, Boston, MA.
- Jaeger, T. F., **Kleinschmidt, D. F.**, *Speech perception and adaptation as inference under uncertainty*. Plenary talk jointly presented at the 15th Australasian International Speech Science and Technology Conference, Christchurch, NZ.
- 2013 **Kleinschmidt, D. F.**, Jaeger, T. F., *Speech perception, the lack of invariance, and adaptation: a computational level analysis*. Poster presented at the Workshop on Current Issues and Methods in Speaker Adaptation, Columbus, OH.
- Kleinschmidt, D. F.**, Jaeger, T. F., *Speech perception, the lack of invariance, and adaptation: a computational level analysis*. Poster presented at the LSA Institute 2013 Workshop: How the brain accommodates variability in linguistic representations, Columbus, OH.
- Salverda, A. P., **Kleinschmidt, D. F.**, Tanenhaus, M. K., *Immediate effects of anticipatory coarticulation in spoken-word recognition*. Talk presented at the 54th Annual Meeting of the Psychonomic Society, Toronto, ON, Canada.
- 2012 **Kleinschmidt, D. F.**, Fine, A. B., Jaeger, T. F., *A Bayesian belief-updating model of syntactic expectation adaptation*. Poster presented at the 25th CUNY Sentence Processing Conference, New York, NY.
- Kleinschmidt, D. F.**, Jaeger, T. F., *Evaluation of a Bayesian belief-updating model for the time course of linguistic adaptation*. Poster presented at the 25th CUNY Sentence Processing Conference, New York, NY.
- 2011 Zaki, S. R., **Kleinschmidt, D. F.**, *Response location effects in categorization: evidence for multiple systems or task complexity?* Poster presented at the 52nd Annual Meeting of the Psychonomic Society, Seattle, WA.
- 2010 **Kleinschmidt, D. F.**, *Efficient coding of speech in the auditory cortex*. Poster presented at the 2nd Annual Neurobiology of Language Conference, San Diego, CA.

Honors and Awards

- NIH F31 Ruth L. Kirschstein National Research Service Award (NRSA) Individual Pre-doctoral Fellowship, 2015–2016.
- Best student presentation, 2013 LSA Summer Institute Workshop: “How the brain accommodates variability in linguistic representations”.
- Best student talk, 2011 Architectures and Mechanisms of Language Processing (AMLaP) Conference.
- National Science Foundation, Graduate Research Fellowship, 2010–2014.
- Sproull Fellowship, University of Rochester, 2010–2015.
- Baggett Fellowship, University of Maryland Linguistics Department post-bac. research fellowship, 2009–2010.

- Member, **Phi Beta Kappa** honors society, inducted 2008.
- **Dean's List**, Williams College, 2005–2009.
- **Tyng Scholarship**, Williams College, 2005–2009.
- **National Merit Scholar**, 2005.
- Maine Educational Association **Clyde Russel Scholarship**, 2005.

Invited Talks

- 2014 **New Zealand Institute of Language, Brain, and Behavior Seminar**, *University of Canterbury*, December 9, 2014.
- Cognition and Language Workshop**, *Stanford University*, October 2, 2014.
- Psychology Department Seminar**, *Carnegie Mellon University*, July 22, 2014.
- Language Processing Brown Bag Seminar**, *Beckman Institute, University of Illinois*, March 6, 2014.
- Cognitive Science Colloquium**, *Tufts University*, February 13, 2014.

Research Appointments

- 2009–2010 **Baggett Fellow**, *University of Maryland, Linguistics Department*.
Post-baccalaureate research fellowship. Advised by Bill Idsardi.
- 2006–2009 **Research Assistant**, *Williams College, Department of Psychology*.
Supervised by Safa Zaki.

Teaching

- February 2014 **Guest Lecturer: Introduction to Cognitive Science**, *Tufts University*.
Presented lecture on computational modeling in the cognitive sciences, with an emphasis on statistical (Bayesian) models.
- Spring 2013 **Teaching assistant: Foundations of Cognitive Science**, *University of Rochester*.
Lectured, conducted recitations, designed assessments, and graded for large introductory class for the Brain and Cognitive Science Department.
- Spring 2012 **Teaching assistant: Cognition**, *University of Rochester*.
Lectured, designed assessments, and graded for introductory cognitive neuroscience course.
- Spring 2011 **Teaching assistant: Cognition**, *University of Rochester*.
Lectured, designed assessments, and graded for introductory cognitive neuroscience course.
- Spring 2009 **Teaching assistant: Ergodic Theory**, *Williams College*.
Graded problem sets and conducted group work sessions for senior seminar.

Service

Statistics outreach

- I've worked to advance statistical literacy among cognitive scientists, psychologists, and linguists, via presentations at workshops and tutorials on statistical methods.
- 2014 Tutorial on simulation-based methods for understanding mixed models. *SST 2014 Tutorial: Regression and mixed effects models*
- 2013 Co-organized UR BCS Department statistics and data analysis working group with Steve Piantadosi.
- 2011 *Preparing data for analysis using R*, presentation with Alex B. Fine at University of Rochester BCS workshop on mixed-effects regression analysis for cognitive scientists.
- 2010 *ANOVA and Mixed-Effects Models in R for Language Scientists*, presentation at University of Maryland Linguistics Dept. Winter Storm language sciences workshop.

Mentoring

Spring 2012 Supervised three undergraduate independent study students (jointly with one other graduate student).

Reviewer for

- *Language*
- *Language and Cognitive Processes*
- *PLoS One*
- *Annual Meeting of the Cognitive Science Society*