

# Dave F. Kleinschmidt

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## Background

Born March 19, 1986  
Address Department of Brain and Cognitive Sciences  
University of Rochester  
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## 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

## 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.

## 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.

## Publications

### Papers

in press Pajak, B., Fine, A. B., **Kleinschmidt, D. F.**, Jaeger, T. F., Learning additional languages as hierarchical inference: Insights from L1 processing. *Language Learning*.  
2015 **Kleinschmidt, D. F.**, Jaeger, T. F., A re-evaluation of selective adaptation: Fatiguing feature

detectors, or distributional learning? *Psychonomic Bulletin & Review*, Advance online publication. doi:10.3758/s13423-015-0943-z

**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

### Submitted and in preparation

- in prep **Kleinschmidt, D. F.**, Emberson, L. L., Doko, D., Edelman, S., Raizada, R. D. S., *How the brain transforms its representational space to learn to solve a linearly inseparable task.*

**Kleinschmidt, D. F.**, Jaeger, T. F., *Inferring listeners' prior beliefs about unfamiliar talkers.* doi:10.13140/RG.2.1.3803.4405

### 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.

### 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.

## 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.

## 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.

## Open source software

I've contributed to a number of open source software projects. I've made substantial contributions to:

- **JuliaStats**: Statistical computing in the Julia language. Contributed model formula parsing and evaluation domain-specific language code to regression modeling functionality in DataFrames.jl and GLM.jl.
- **Gadfly.jl**: Data visualization in Julia, based on the grammar of graphics.

And contributed minor bug fixes and improvements to **latexdiff**, **lolcommits**, a node.js **mturk API**, and **FAAV/FAVE**.

## Mentoring

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

## Reviewer for

- *Attention, Perception, & Psychophysics*
- *Journal of Memory & Language*
- *Language*
- *Language and Cognitive Processes*
- *PLoS One*
- *Annual Meeting of the Cognitive Science Society*
- *MIT Press*