

## Curriculum Vitae

Joe Toscano  
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### Contact information

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### Education

In progress	Ph.D., Cognition and Perception University of Iowa, Dept. of Psychology Advisor: Dr. Bob McMurray
2005	B.S., Brain and Cognitive Sciences, Honors in Research University of Rochester, Dept. of Brain and Cognitive Sciences

### Research interests

speech perception, spoken word recognition, speech development, unsupervised learning, computational modeling, event-related potential techniques, eye-tracking techniques

### Research experience

2005 – present	Graduate Research Assistant University of Iowa, Dept. of Psychology Mechanisms of Audio-visual Categorization Lab, Dr. Bob McMurray
2004	Research Assistant NASA Ames Research Center Human Information Processing Research Branch Visual Perception Lab, Dr. Lee Stone and Dr. Brent Beutter
2003 – 2005	Research Assistant, University of Rochester, Dept. of Brain & Cognitive Sciences Language Processing Lab, Dr. Michael Tanenhaus

## **Honors and awards**

- 2008 Best Student Paper in Speech Communication – Second Prize  
Acoustical Society of America
- 2008 Computational Modeling Prize in Perception & Action  
Cognitive Science Society
- 2007 J. R. Simon Early Scholarship Potential Award  
University of Iowa, Dept. of Psychology
- 2006 Best Student Paper in Speech Communication – First Prize  
Acoustical Society of America
- 2001 Rush Rhees Scholarship  
University of Rochester
- 2001 Bausch & Lomb Science Award  
University of Rochester

## **Grants and funding**

- “Listeners’ use of multiple acoustic cues in speech”  
University of Iowa Student Government Research Grant, 2006
- Travel Funds Awards, 2006, 2007, 2008  
University of Iowa Graduate Student Senate
- Scholarly Presentation Awards, 2006, 2007  
University of Iowa Student Government

## **Teaching experience**

- Instructor, Introduction to Developmental Science, 2008  
University of Iowa, Dept. of Psychology
- Co-Instructor, Evaluating Psychological Research (Research Methods), 2006, 2008  
University of Iowa, Dept. of Psychology
- Graduate Teaching Assistant, Elementary Psychology, 2007  
University of Iowa, Dept. of Psychology
- Graduate Teaching Assistant, Experimental Psychology II, 2006  
University of Iowa, Dept. of Psychology

## **Professional affiliations**

- 2008 – present Cognitive Science Society

2007 – present American Association for the Advancement of Science  
2006 – present Acoustical Society of America  
2006 – present Sigma Xi Scientific Research Society  
2005 – 2006 Vision Sciences Society

### **Professional activities**

2006 ERP Boot Camp, University of California, Davis  
2004 NASA Undergraduate Student Research Program  
Ames Research Center, Mountain View, CA

### **Service**

Co-organizer, 12th Midcontinental Workshop in Phonology, October 2006  
University of Iowa, Iowa City, IA

Faculty Meeting Representative, 2006-2007  
University of Iowa, Dept. of Psychology

Graduate Resources Committee, 2007-2009  
University of Iowa, Dept. of Psychology

Reviewer for book chapter in J. P. Spencer, M. Thomas, & J. McClelland (Eds.), *Toward a New Grand Theory of Development: Connectionism and Dynamic Systems Theory Re-Considered*.

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### **Publications**

#### ***Peer-reviewed journal articles***

Toscano, J. C. & McMurray, B. (in press). Cue integration with categories: Weighting acoustic cues in speech using unsupervised learning and distributional statistics. *Cognitive Science*.

McMurray, B., Aslin, R. N., & Toscano, J. C. (2009). Statistical learning of phonetic categories: Computational insights and limitations. *Developmental Science*, 12(3), 369-378.

#### ***Other publications***

McMurray, B., Horst, J., Toscano, J., C. & Samuelson, L. K. (2009). Towards an integration of connectionist learning and dynamical systems processing: case studies in speech and lexical development. In J. P. Spencer, M. Thomas, & J. McClelland (Eds.), *Toward a New Grand Theory of Development: Connectionism and Dynamic Systems Theory Re-Considered*. Oxford University Press.

Toscano, J. C. & McMurray, B. (2008). Using the distributional statistics of speech sounds for

weighting and integrating acoustic cues. *Proceedings of the Cognitive Science Society*. Mahwah, NJ: Erlbaum.

Toscano, J. C., Perry, L. K., Mueller, K. L., Bean, A. F., Galle, M. E., & Samuelson, L. K. (2008). Language as shaped by the brain; the brain as shaped by development. Commentary on Christiansen & Chater, "Language as shaped by the brain", *Behavioral and Brain Sciences*, 31, 535-536.

Toscano, J. C. & Beutter, B. R. (2005). Performance during visual search: Designing spacecraft with humans in mind. *University of Rochester Journal of Undergraduate Research*, 3(2), 8-12.

### ***Conference presentations***

Toscano, J. C. & McMurray, B., Dennhardt, J., & Luck, S. J. (2009, April). Listeners' sensitivity to acoustic detail in speech at the level of both early encoding and categorization. Poster to be presented at the 15th International Congress on Event-related Potentials of the Brain, Indiana University, Bloomington, IN.

Toscano, J. C. & McMurray, B. (2008, November). Online processing of acoustic cues in speech perception: Comparing statistical and neural network models. Poster presented at the 156th Meeting of the Acoustical Society of America, Miami, FL.

Toscano, J. C. & McMurray, B. (2008, October). Perception of voicing is graded all the way down: Evidence from electrophysiology. Talk presented at the 14th Midcontinental Workshop on Phonology, University of Minnesota, Minneapolis, MN.

Toscano, J. C., Galle, M. E., & McMurray, B. (2007, October). Learning positional variation and place of articulation in stop consonants from the distributional statistics of acoustic cues. Poster presented at the 13th Midcontinental Workshop on Phonology, Ohio State University, Columbus, OH.

Toscano, J. C. & McMurray, B. (2007, October). Integrating acoustic cues to phonetic features: A computational approach to cue weighting. Poster presented at Where Do Features Come From? Phonological Primitives in the Brain, the Mouth, and the Ear. Paris, France.

Toscano, J. C. & McMurray, B. (2007, March). Taking statistical learning to the next level: A computational approach to the acquisition of multi-dimensional categories. Poster to be presented at the 2007 Biennial Meeting of the Society for Research in Child Development, Boston, MA.

Toscano, J. C., & McMurray, B. (2006, October). Acoustic cue integration in natural speech: Empirical and computational results. Talk to be presented at the 12th Midcontinental Workshop in Phonology, University of Iowa, Iowa City, IA.

Toscano, J. C. & McMurray, B. (2006, June). A lexical locus for the integration of asynchronous cues to voicing: An investigation with natural stimuli. Poster presented at the 151st Meeting of the Acoustical Society of America, Providence, RI.

Dennhardt, J., McMurray, B., Luck, S. J., & Toscano, J. C. (2006, June). Gradient effects of continuous acoustic detail revealed in event-related potentials. Poster presented at the 151st Meeting of the Acoustical Society of America, Providence, RI.

Toscano, J. C. & McMurray, B. (2005, November). Statistical learning, cross-linguistic constraints, and the acquisition of speech categories: a computational approach. Talk presented at the 11th Midcontinental Workshop in Phonology, University of Michigan, Ann Arbor, MI.

Beutter, B. R., Toscano, J., & Stone, L. S. (2005, May). Top-down and bottom-up influences on saccades in a visual search task. Poster presented at the Annual Meeting of the Vision Sciences Society, Sarasota, FL.

### ***Invited presentations***

Toscano, J. C. (2005, November). Category acquisition through statistical learning using a mixture of Gaussians model. Talk presented at University of Rochester, Speech Group.

### ***Other manuscripts***

Toscano, J. C. (2005). Effect of object salience on eye movements in a visual-linguistic task. Honors thesis for the B.S. in Brain and Cognitive Sciences, University of Rochester.

Toscano, J. C. (2004). Effect of salience on saccadic performance during visual search. Unpublished manuscript written for NASA Undergraduate Student Research Program.