

Dr. Rachel Ostrand

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Professional Experience

IBM Research, Yorktown Heights, NY

Research Staff Member

2018 – present

Post-Doctoral Researcher

2016 – 2018

- *Research focus: (a) Using characteristics of and changes in speech production to detect cognitive disorders, including Alzheimer's and Parkinson's disease, and track cognitive decline over time; (b) Statistical learning in language production and linguistic adaptation and generalization from prior experience to the same or different speakers.*

Kent State University, Kent, OH

Adjunct Assistant Professor

2017 – present

Nuance Communications, Sunnyvale, CA

User Interface Design Intern

2014

- *Research focus: Adaptation of callers' speech production to the language used by the system prompts in Interactive Voice Response (IVR) systems.*

UC San Diego, San Diego, CA

Graduate Research Assistant, Cognitive Science and Psychology Depts.

2010 – 2016

Teaching Assistant, Programming and Cognitive Science Courses

2010 – 2016

- *Research focus: Partner-specificity and context-specificity of linguistic adaptation and alignment in dialogue.*

Education

University of California, San Diego, San Diego, CA

Ph.D., Cognitive Science

2016

M.S., Cognitive Science

2012

Brown University, Providence, RI

Sc.B., Cognitive Science (Honors)

2009

Publications

- Sanborn, V., **Ostrand, R.**, Ciesla, J., Gunstad, J. (in press). Automated Assessment of Speech Production and Prediction of MCI in Older Adults. *Applied Neurology: Adult*.
- Abrami, A., Gunzler, S., Kilbane, C. **Ostrand, R.**, Ho, B.K., Cecchi, G. (in press). Automated computer vision assessment of hypomimia in Parkinson's disease. *Journal of Medical Internet Research*.
- **Ostrand, R.**, Gunstad, J. (2020). Using Automatic Assessment of Speech Production to Predict Current and Future Cognitive Function in Older Adults. *Journal of Geriatric Psychiatry and Neurology*.
- Agurto, C., Cecchi, G.A., Norel, R., **Ostrand, R.**, ... Bedi, G. (2020). Detection of Acute 3,4-Methylenedioxymethamphetamine (MDMA) Effects Across Protocols Using Automated Natural Language Processing. *Neuropsychopharmacology*, 45, 823-832.
- Norel, R., Agurto, C., Heisig, S., Rice, J.J., Zhang, H., **Ostrand, R.**, ... Cecchi, G.A. (2020). Speech-based identification of L-DOPA ON/OFF state in Parkinson's Disease patients. *npj Parkinson's Disease*, 6.
- **Ostrand, R.**, Ferreira, V.S. (2019). Repeat after us: Syntactic alignment is not partner-specific. *Journal of Memory and Language*, 108, 104037.
- Gruberg, N., **Ostrand, R.**, Momma, S., Ferreira, V.S. (2019). Syntactic entrainment: The repetition of syntactic structures in event descriptions. *Journal of Memory and Language*, 107, 216-232.
- Agurto, C., Norel, R., **Ostrand, R.**, ... Cecchi, G.A. (2017). Phonological markers of Oxytocin and MDMA ingestion. *Proceedings of Interspeech*, 3142-3146.

- **Ostrand, R.**, Blumstein, S.E., Ferreira, V.S., Morgan, J.L. (2016). What you see isn't always what you get: Auditory word signals trump consciously perceived words in lexical access. *Cognition*, 151, 96-107.
- **Ostrand, R.**, Blumstein, S.E., Morgan, J.L. (2011). When hearing lips and seeing voices becomes perceiving speech: Auditory-visual integration in lexical access. *Proceedings of the 33rd Annual Conference of the Cognitive Science Society*, 1376-1381.

Publications in Progress

- **Ostrand, R.**, Chodroff, E. (under review). It's Alignment All the Way Down – But Not All the Way Up: Speakers Align on Some Features but Not Others Within the Same Dialogue.
- **Ostrand, R.**, Berger, S., Cecchi, G.A. (in prep). A Method for Personalized, Longitudinal Assessment of Chronic Illnesses Using Spontaneous Speech Production at Home.
- Dorsi, J., **Ostrand, R.**, Rosenblum, L.D. (in prep). Semantic Priming from McGurk Words: Priming Depends on Perception.

Reviewed Conference Talks

- **Ostrand, R.**, Gunstad, J. (2019). Using Automatic Assessment of Speech Production to Assess Current and Future Cognitive Function in Older Adults. *Technology in Psychiatry Summit*, Boston, MA, USA. [21% acceptance rate]
- **Ostrand, R.**, Berger, S., Cecchi, G. (2019). Personalized, Longitudinal Assessment of Cognitive Disorders Using Spontaneous Speech Production at Home. *Northeast Computational Health Summit*, Providence, RI, USA.
- **Ostrand, R.** (2018). It's Alignment All the Way Down – But Not All the Way Up. *AMLaP 2018: Architectures and Mechanisms for Language Processing*, Berlin, Germany. [8% acceptance rate]
- **Ostrand, R.**, Bergen, B., Ferreira, V. (2016). What Makes Talking While Driving Deadly? *Transportation Research Board Annual Meeting*, Washington, DC, USA. [#1 ranked fellowship recipient]
- **Ostrand, R.**, Bergen, B., Ferreira, V. (2015). Speakers Do Not Adapt Their Syntax to Match Listeners' Preferences. *AMLaP 2015: Architectures and Mechanisms for Language Processing*, Valletta, Malta. [15% acceptance rate]
- **Ostrand, R.**, Bergen, B., Ferreira, V. (2015). Speakers Do Not Adapt Their Syntactic Production to Their Listeners' Preferences. *CUNY Conference on Human Sentence Processing*, Los Angeles, CA, USA. [≤ 12% acceptance rate]
- **Ostrand, R.**, Blumstein, S.E., Morgan, J.L. (2013). Perceiving One Word While Accessing Another: The Time Course of Audio-Visual Integration in Lexical Access. *AMLaP 2013: Architectures and Mechanisms for Language Processing*, Marseille, France. [10% acceptance rate]
- **Ostrand, R.**, Kutas, M., Bergen, B. (2012). Listener Modeling of Speakers in Language Comprehension. *AMLaP 2012: Architectures and Mechanisms for Language Processing*, Riva del Garda, Italy. [11% acceptance rate]
- **Ostrand, R.**, Blumstein, S.E., Morgan, J.L. (2011). When Hearing Lips and Seeing Voices Becomes Perceiving Speech: Auditory-Visual Integration in Lexical Access. *33rd Annual Conference of the Cognitive Science Society*. [32% acceptance rate]
- Alario, F.-X., **Ostrand, R.**, Thoenig, M., Burle, B. (2011). Conflict Adaptation During Verbal Response Selection. *ESCOPE 2011, The 17th Meeting of The European Society For Cognitive Psychology*, San Sebastián, Spain.

Unreviewed and Conference Posters (Selected)

- Kleinman, D., **Ostrand, R.**, Morgan, A., Gurumukhani, M., & Wittenberg, E. (2020). Non-Linguistic Context Affects Processing of Ambiguous Speech. *AMLaP 2020: Architectures and Mechanisms for Language Processing*, The World Wide Web.
- **Ostrand, R.**, Berger, S., Agurto, C., ... (2020). A Method for Personalized, Longitudinal Assessment of Chronic Pain Using Spontaneous Speech Production at Home. *World Congress of the World Institute of Pain*, Rome, Italy.
- Guarini, E., **Ostrand, R.** (2019). Does Linguistic Alignment Aid Production or Comprehension? *60th Annual Meeting of The Psychonomic Society*, Montreal, Quebec, Canada.
- **Ostrand, R.**, Gunstad, J. (2018). Using Speech Production to Detect Cognitive Decline. *59th Annual Meeting of The Psychonomic Society*, New Orleans, LA, USA.
- Norel, R., Agurto, C., Heisig, S., **Ostrand, R.**, ... Cecchi, G.A. (2018). Identification of L-DOPA ON/OFF state using speech-based analyses in Parkinson's Disease subjects. *Movement Disorder Society*, Hong Kong, China.
- **Ostrand, R.**, Ferreira, V.S. (2018). Repeat After Us: Syntactic Alignment is Not Partner-Specific. *The International Meeting of The Psychonomic Society*, Amsterdam, The Netherlands.
- **Ostrand, R.**, Gunstad, J. (2018). Assessment of Cognitive Decline in Alzheimer's Disease Using Automated Detection of Lexical and Semantic Speech Features. *Northeast Computational Health Summit*, Boston, MA, USA.
- **Ostrand, R.**, Ferreira, V.S. (2017). Syntactic Alignment is Not Partner-Specific. *58th Annual Meeting of The Psychonomic Society*, Vancouver, Canada.
- Kleinman, D., **Ostrand, R.**, Ferreira, V.S., Bergen, B. (2016). Drivers – but not passengers – prioritize driving over speech. *AMLaP 2016: Architectures and Mechanisms for Language Processing*, Bilbao, Spain.
- **Ostrand, R.**, Bergen, B., Ferreira, V. (2015). Speakers Prioritize Driving Over Talking, But Only When They've Warned Their Listeners. *56th Annual Meeting of The Psychonomic Society*, Chicago, IL, USA.
- **Ostrand, R.**, Ferreira, V., Bergen, B. (2014). How Talking While Driving Can Kill You. *iSLC 2014: Inter-Science of Learning Center Conference*, Pittsburgh, PA, USA.
- Gruberg, N., **Ostrand, R.**, Ferreira, V. (2013). Syntactic Entrainment is Sometimes Partner-Specific. *AMLaP 2013: Architectures and Mechanisms for Language Processing*, Marseille, France.
- **Ostrand, R.**, Kutas, M., Bergen, B. (2013). Speaker-Specific Adaptation in Speech Comprehension. *Linguistic Society of America Workshop: How the brain accommodates variability in linguistic representations*, Ann Arbor, MI, USA.

Invited Talks (Selected)

- Keynote, *UC San Diego Society for Women Engineers Envision Conference*, February 8, 2020.
- Psych-E: Using Computational Psychiatry as a Diagnostic Tool. *IBM Board of Directors Annual Strategy Meeting*, September 25, 2017.
- Linguistic Alignment in Dialogue and Cognitive Disorders. *Educational Testing Service (ETS)*, March 9, 2017.
- When Do We Talk (and Listen) Like Each Other? Linguistic Adaptation in Speech Production and Comprehension. *Kent State University*, December 5, 2016.
- Why (and When) Do Speakers Talk Like Each Other? *University of Illinois, Urbana-Champaign*, January 22, 2016.
- What You See Isn't Always What You Get. *UC San Diego Center for Research in Language*, May 12, 2015.
- Sprinting Towards Better Caller Behavior. *Nuance Communications Global UI Meeting*, September 2014.
- Why Can Talking and Driving Kill You? *UC San Diego STEMM Works in Progress Series*, November 7, 2013.

Science Outreach Experience

Family Science Saturday Class Instructor , <i>IBM Research</i>	2018 – present
Boys & Girls Go Tech Know STEM Summer Camp Instructor , <i>IBM Research</i>	2017 – present
Science Outreach Coordinator , <i>Fleet Science Center</i>	2015 – 2016
Gallery Facilitator, Mentor, & Hands-on Science Demonstrator , <i>Fleet Science Center</i>	2013 – 2016
Science Club for Girls Education Volunteer , <i>Fleet Science Center</i>	2013 – 2016
Pint of Science Festival (http://pintofscience.us/) Organizing Committee , <i>San Diego, CA</i>	2014 – 2015

Leadership and Mentorship Experience

Mentor and Intern Supervisor for Undergraduate Cognitive Science/Psychology Majors	2012 – present
IBM Research-Yorktown New Hire Network Coordinator , <i>IBM Research</i>	2017 – present
Mentor/Advisor for High School Science Research Student , <i>Yorktown Heights High School</i>	2018 – 2020
Cognitive Science Department Graduate Liaison to Undergraduates , <i>UC San Diego</i>	2011 – 2016
Graduate Advisor on Undergraduate Honors Thesis Committees , <i>UC San Diego</i>	2011 – 2013

Honors, Awards, and Grants (Selected)

NIH R01 Award , <i>National Institute of Aging</i> (role: co-PI)	2020 – 2023
Frontiers of Engineering Fellow , <i>National Academy of Engineering</i>	2020
Cleveland Brain Health Initiative Scholars Grant , <i>CBHI</i> (role: co-PI)	2019 – 2020
Dwight David Eisenhower Graduate Fellowship , <i>United States Department of Transportation</i> (role: PI) • #1 ranked recipient out of 200 awardees and many hundred applicants nationwide	2015 – 2016
Dean of Social Sciences Travel Award , <i>UC San Diego</i>	2015
Bates Graduate Research Travel Award , <i>Center for Research in Language, UC San Diego</i>	2014
Graduate Excellence Award , <i>Cognitive Science Department, UC San Diego</i>	2011
Grindley Grant , <i>Experimental Psychology Society</i>	2011
Glushko Graduate Fellowship , <i>Robert J. Glushko and Pamela Samuelson Foundation</i>	2010 – 2014
E. A. Mooar Prize for Best Undergraduate Honors Thesis , <i>Cognitive Science Department, Brown University</i>	2009
AT&T Foundation Scholarship for Outstanding Scholasticism	2008

Last updated: February 2, 2021