

# Sarah Colby

Department of Psychological and Brain Sciences  
Department of Otolaryngology – Head and Neck Surgery  
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## Education

- 2013 - 2018 Ph.D., Communication Sciences & Disorders  
McGill University, Montreal, QC
- 2012 - 2013 M.A., Linguistics  
University of Ottawa, Ottawa, ON
- 2008 - 2012 B.A., Linguistics & Psychology (Joint Honours)  
University of Ottawa, Ottawa, ON

## Academic Positions

- 2018 - Present Postdoctoral Research Scholar  
Department of Psychological and Brain Sciences  
Department of Otolaryngology – Head and Neck Surgery  
Cochlear Implant Research Center  
University of Iowa, Iowa City, IA

## Peer-reviewed Publications

### ***Manuscripts in Preparation***

McMurray, B., Smith, F.X., Huffman, M., Roof, K., Muegge, J., Jeppsen, C., Kutlu, E., & **Colby, S.E.** (2023, R&R). The fundamental dimensions of real-time word recognition revealed by a large sample of cochlear implant users. *Nature Communications*.

**Colby, S.E.**, Smith, F.X., & McMurray, B. (2023, R&R). The role of inhibitory control in spoken word recognition: Evidence from cochlear implant users. *Language, Cognition, & Neuroscience*.

**Colby, S.E.** & McMurray, B. (2024, under review). Engaging effort improves efficiency during spoken word recognition in cochlear implant users. *Quarterly Journal of Experimental Psychology*.

**Colby, S.E.** & McMurray, B. (in prep). Lexical access and listening effort in the face of unexpected talker information.

**Colby, S.E.** & McMurray, B. (in prep). Test-retest reliability for indices of spoken word recognition derived from the Visual World Paradigm.

### ***Journal Articles***

Choi, I., Gander, P.E., Berger, J.I., Woo, J., Choy, M., Hong, J., **Colby, S.E.**, McMurray, B., & Griffiths, T.D. (2023, accepted). Spectral grouping of electrically encoded sound predicts speech-in-noise performance in cochlear implantees. *Journal of the Association for Research in Otolaryngology*.

**Colby, S.E.** & McMurray, B. (2023). Efficiency of spoken word recognition slows across the adult lifespan. *Cognition*, 240.

McMurray, B., Apfelbaum, K.S., **Colby, S.**, & Tomblin, J.B., (2023). Understanding language processing in variable populations on their own terms: Towards a functionalist psycholinguistics of individual differences, development and disorders. *Applied Psycholinguistics*, 44 (4), 565-592.

**Colby, S.**, Seedorff, M., & McMurray, B. (2023). Audiological and Demographic Factors that Impact the Precision of Speech Categorization in Cochlear Implant Users. *Ear and Hearing*, 44 (3), 572-587.

**Colby, S.** & Orena, A. (2022). Recognizing voices through a cochlear implant: A systematic review of talker identification, discrimination, and perception. *Journal of Speech, Language, and Hearing Research*, 65, 3165-3194.

**Colby, S.** & McMurray, B. (2021). Cognitive and physiological measures of listening effort during degraded speech perception: Relating dual-task and pupillometry paradigms. *Journal of Speech, Language, and Hearing Research*, 64 (9), 3627–3652.

**Colby, S.**, Shiller, D., Clayards, M., & Baum, S. (2019). Lexical bias in older and younger adults: Different responses to altered auditory feedback. *Journal of Speech, Language, and Hearing Research*, 62 (4S), 1144-1151.

**Colby, S.**, Clayards, M. A., & Baum, S. R. (2018). The role of lexical status and individual differences for perceptual learning in younger and older adults. *Journal of Speech, Language, and Hearing Research*, 61 (8), 1855–1874.

### **Proceedings**

**Colby, S.**, Poulton, V., & Clayards, M. (2017). The role of inhibition in older and younger adults' lexical competition. *Canadian Acoustics*, 45 (3), 174-175.

### **Refereed Conference Presentations**

#### **Oral Presentations**

**Colby, S.**, & McMurray, B. (2023, November). *Online language processing and listening effort in the face of unexpected talker information*. Oral presentation at the 22<sup>nd</sup> Auditory Perception, Cognition, and Action Meeting (APCAM), San Francisco, CA, U.S.A.

**Colby, S.**, & McMurray, B. (2022, June). *Efficiency of Spoken Word Recognition Declines Across the Adult Lifespan*. Oral presentation at 6<sup>th</sup> International Conference on Cognitive Hearing Science for Communication, Linköping, Sweden.

**Colby, S.**, Seedorff, M., & McMurray, B. (2022, February). *Audiological and Demographic Factors that Impact Phonetic Categorization by Cochlear Implant Users*. Oral presentation at 45<sup>th</sup> Midwinter Meeting of the Association for Research in Otolaryngology (Virtual).

**Colby, S.**, Smith, F., Roof, K., & McMurray B. (2022, February). *The Effects of Language Experience and Inhibitory Control on Spoken Word Recognition for Cochlear Implant Users*. Oral presentation at the 45<sup>th</sup> Midwinter Meeting of the Association for Research in Otolaryngology (Virtual).

**Colby, S.**, Shiller, D., Clayards, M., & Baum, S. (2019, December). *The lexical bias in older adults' compensation to altered auditory feedback*. Oral presentation at 178<sup>th</sup> Meeting of the Acoustical Society of America, San Diego, CA, U.S.A.

**Colby, S.**, Poulton, V., Clayards, M. (2017, October). *The role of inhibition in older and younger adults' lexical competition*. Oral presentation at Acoustics Week in Canada 2017, Guelph, ON, Canada.

**Colby, S.**, Clayards, M., & Baum, S. (2017, April). *Top-down and bottom-up perceptual learning for speech is maintained in older adults*. Oral presentation at Workshop on Speech Perception and Production across the Lifespan (SPPL 2017), University College London, London, U.K.

#### **Poster Presentations**

**Colby, S.**, Smith, F.X., Huffman, M., Jeppsen, C., Muegge, J., Kutlu, E., & McMurray, B. (2023, November). *The dimensions of real-time spoken word recognition in cochlear implant users*. Poster presented at Psychonomic Society's 64<sup>th</sup> Annual Meeting, San Francisco, CA, U.S.A.

**Colby, S.**, Huffman, M., & McMurray, B. (2022, December). *Engaging effort improves efficiency during word recognition in cochlear implant users*. Poster presented at the 183<sup>rd</sup> Meeting of the Acoustical Society of America, Nashville, TN, U.S.A.

Smith, F.X., **Colby, S.**, Geller, J., Choi, I., & McMurray, B. (2022, February). *Neural correlates of effortful listening with vocoded speech*. Poster presented at the 45<sup>th</sup> Midwinter Meeting of the Association for Research in Otolaryngology (Virtual).

**Colby, S.**, Smith, F.X., Roof, K., & McMurray, B. (2020, November). *Cognitive control and the resolution of lexical competition in cochlear implant users*. Poster presented at Psychonomic Society's 61<sup>st</sup> Annual Meeting (Virtual).

**Colby, S.**, & McMurray, B. (2019, December). *The role of listening effort during degraded speech recognition: A comparison of the dual-task and pupillometry paradigms*. Poster presented at 178<sup>th</sup> Meeting of the Acoustical Society of America, San Diego, CA, U.S.A.

- Colby, S.**, Poulton, V., & Clayards, M. (2018, May). *Inhibitory and lexical frequency effects in younger and older adults' spoken word recognition: Evidence from eye-tracking*. Poster presented at Cognitive Aging Conference, Atlanta, Georgia, U.S.A.
- Colby, S.**, Poulton, V., & Clayards, M. (2017, December). *Inhibitory and lexical frequency effects in younger and older adults' spoken word recognition*. Poster presented at 174<sup>th</sup> Meeting of the Acoustical Society of America, New Orleans, Louisiana, U.S.A.
- Colby, S.**, Shiller, D., Clayards, M., & Baum, S. (2017, November). *Lexical effects in older adults' sensorimotor adaptation for speech*. Poster presented at 7<sup>th</sup> International Conference on Aging and Speech Communication Research, University of South Florida, Tampa, U.S.A.
- Colby, S.**, Poulton, V., & Clayards, M. (2017, April). *Inhibition predicts lexical competition in older adults' spoken word recognition*. Poster presented at Workshop on Speech Perception and Production across the Lifespan (SPPL 2017), University College London, London, U.K.
- Colby, S.**, Clayards, M., & Baum, S. (2016, November). *Top-down and bottom-up learning for speech in younger and older adults*. Poster presented at Congrès international en orthophonie et en audiologie (International Conference on Speech Language Pathology and Audiology). Université de Montréal, Montreal, Canada.
- Clayards, M. & **Colby, S.** (2015, December). *Individual differences in cue weights are correlated across contrasts*. Poster presented at Workshop on Individual Differences in Language Processing Across the Lifespan. Max Planck Institute for Psycholinguistics, Nijmegen, Netherlands.
- Colby, S.** & Niembro, A.S. (2013, February). *Lexical Competition as Affected by Subcategorical Cues: A project proposal*. Poster presented at Psychoshorts 2013. University of Ottawa, Ottawa, Canada.

## Funding

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| 2023-2025   | NIH Exploratory/Developmental Research Grant Program (R21), National Institutes of Health - National Institute of Aging (NIH NIA)<br><i>Project title: The real-time dynamics of language processing across the lifespan</i><br><i>Role: MPI</i><br><i>Total amount: \$427,625</i> |
| 2015 - 2018 | Bourse de doctorat en recherche, Fonds de recherche du Québec – Société et culture (Doctoral Research Fellowship, Quebec Research Fund – Society and Culture)  |
| 2013 - 2015 | Graduate Excellence Award, McGill University, Montreal, QC   |
| 2013 - 2014 | Max Stern Recruitment Fellowship, McGill University, Montreal, QC  |

## Awards

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| 2022 | Early-Career Acoustician Retreat Travel Award, 183 <sup>rd</sup> Meeting of the Acoustical Society of America, Nashville, USA   |
| 2022 | ARO Midwinter Meeting Travel Award, 45 <sup>th</sup> Annual Midwinter Meeting of the Association for Research in Otolaryngology (Virtual)   |
| 2017 | Speech Communication Student Poster Competition (2 <sup>nd</sup> place), 174 <sup>th</sup> Meeting of the Acoustical Society of America, New Orleans, USA   |
| 2017 | Student Presentation Prize, Acoustics Week in Canada 2017 (Canadian Acoustical Association), Guelph, ON   |
| 2017 | Alexander Graham Bell Prize in Speech Communication and Hearing, Canadian Acoustical Association  |
| 2016 | Prix d'excellence en recherche, Congrès international en orthophonie et en audiologie (Prize for excellence in research, International Conference on Speech Language Pathology and Audiology), Université de Montréal, Montreal, Canada |
| 2013 | Dean's Scholarship, University of Ottawa, Ottawa, ON  |

## Teaching Experience

- Winter 2022 Guest Lecturer, Villanova University, Philadelphia, PA  
- Cognitive & Behavioral Neuroscience  
"Age-related changes to cognition"
- Fall 2021 Guest Lecturer, Rutgers University, New Brunswick, NJ  
- 185:320 Research Methods in Cognitive Science  
"Understanding Cognition Through the Eyes: Introduction to Pupillometry"
- Winter 2018 Guest Lecturer, McGill University, Montreal, QC  
- SCSD 631: Speech Science  
"Speech perception in adverse conditions"  
- LING 602: Graduate Seminar  
"Introduction to eye-tracking"
- Fall 2017 Lab Instructor, McGill University, Montreal, QC  
- SCSD 619: Phonological Development  
Phonetic Transcription Lab
- Winter 2017 Guest Lecturer, McGill University, Montreal, QC  
- SCSD 631: Speech Science  
"Speech perception in adverse conditions"
- Fall 2016 - Winter 2017 Co-supervisor, McGill University, Montreal, QC  
- COGS 444: Honours Research in Cognitive Science
- Summer 2016 Co-instructor, McGill University, Montreal, QC  
- LING 488: Independent Study I
- Winter 2016 Guest Tutorial, McGill University, Montreal, QC  
- SCSD 631: Speech Science  
Hands-on SPIN & HINT tutorial
- Winter 2013 Teaching Assistant, University of Ottawa, Ottawa, ON  
- LIN 1320: Introduction to Linguistics II
- Fall 2012 Teaching Assistant, University of Ottawa, Ottawa, ON  
- LIN 1310: Introduction to Linguistics I

## Service

### **Departmental Service**

- 2016 - 2018 Research Training Enrichment Committee Member, School of Communication Sciences & Disorders, McGill University
- 2016 - 2018 Co-organizer, PhD Reading Group, School of Communication Sciences & Disorders, McGill University
- 2015 - 2017 Research Representative, Communication Sciences & Disorders Graduate Students' Society (CSDGSS), McGill University
- 2015 - 2017 Communication Sciences & Disorders Representative, Post-graduate Students' Society (PGSS), McGill University
- 2012 - 2013 Steward, Canadian Union of Public Employees (CUPE) 2626 (representing University of Ottawa's Teaching Assistants & Research Assistants)

### **Conference & Other Association Service**

- 2022 Poster Session Chair, "Healthcare Settings and Clinical Populations" Speech Communication Session, 183<sup>rd</sup> Meeting of the Acoustical Society of America, Nashville, TN
- 2022 Judge, Speech Communication Student Poster Competition, 183<sup>rd</sup> Meeting of the Acoustical Society of America, Nashville, TN

- 2016 - 2017 Science Outreach Volunteer, Let's Talk Science, McGill University, Montreal, QC  
2013 - 2014 Eureka Festival Committee, Brain Awareness Montreal, Montreal, QC  
2013 Organizing Committee, Psychoshorts 2013, University of Ottawa, Ottawa, ON

***Ad hoc Journal and Grant Review***

- 2023 9 total:  
American Journal of Audiology (1); Applied Psycholinguistics (1); Cognition (1); Ear & Hearing (2); Journal of Speech, Language, and Hearing Research (3); National Science Foundation (1)
- 2022 4 total:  
Applied Psycholinguistics (1); Cognition (1); Journal of Communication Disorders (1); Journal of Speech, Language, and Hearing Research (1)
- 2021 6 total:  
American Journal of Audiology (2); Brain and Language (1); Journal of Communication Disorders (1); Journal of Speech, Language, and Hearing Research (1); Mitacs Accelerate Proposal (1)
- 2020 1 total:  
Journal of Speech, Language, and Hearing Research (1)
- 2019 2 total:  
Cognition (1); Journal of Experimental Psychology: Learning, Memory, and Cognition (1)