
Senior Postdoctoral Associate, Department of Speech, Language, & Hearing Sciences, Boston University

EDUCATION

- Massachusetts Institute of Technology, Cambridge, MA** 2005–2010
Ph.D., Harvard-MIT Division of Health Sciences and Technology
Speech and Hearing Bioscience and Technology Program
Thesis: The role of linguistic contrasts in the auditory feedback control of speech
- Massachusetts Institute of Technology, Cambridge, MA** 2001–2005
B.S., Brain and Cognitive Sciences

RESEARCH EXPERIENCE

- Boston University Aphasia Research Laboratory, Boston, MA** 2015–present
Senior Postdoctoral Associate
- UCSF Biomagnetic Imaging Laboratory, San Francisco, CA** 2010–2015
Postdoctoral Scholar
- MIT Speech Communication Group / BU Speech Lab, Cambridge, MA** 2005–2010
Graduate Research Assistant
- MIT Computational Cognitive Science Lab, Cambridge, MA** 2003–2005
Undergraduate Research Assistant
- CNRS Laboratoire de Neurosciences Cognitives, Marseille, France** 2004
Research Assistant

AWARDS AND GRANTS

- NIH Pathway to Independence Award (K99/R00)** 2015–2019
K99 Grant (PI): 1K99DC014520
Title: Neural markers of speech error detection and correction abilities in aphasia
- NSF Cognitive Neuroscience Program** 2013–2016
BCS-1262297 (personnel)
Title: Function of auditory feedback processing during speech
- NIH Ruth L. Kirschstein National Research Service Award (NRSA)** 2011–2014
F32 Grant (PI): 1F32DC011249
Title: Phonetic influences on auditory feedback control

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| UCSF Scientific Leadership and Management scholarship J. David Gladstone Institutes, Course in Scientific Management | 2014 |
| NIH Training Grant Harvard-MIT Speech and Hearing Bioscience and Technology program | 2005–2009 |
| Martha Gray Prize for Excellence in Research Harvard-MIT Health Sciences and Technology Forum Best Poster: Imaging and Optics | 2008 |
| MIT Kelly-Douglas Traveling Fellowship | 2004 |

PUBLICATIONS

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (in preparation). Task-dependent auditory predictions of self-produced speech. To be submitted to *The Journal of Neuroscience*.

Martin, C.D., Niziolek, C.A., Duñabeitia, J.A., Perez, A., Hernandez, D., Carreiras, M., and Houde, J.F. (in preparation). How to explain individual variability in speech motor control. To be submitted to the *Journal of Speech, Language, and Hearing Research*.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (submitted). A goal-based model of auditory error in speech production. In review at *Frontiers in Human Neuroscience*.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). The contribution of auditory feedback to corrective movements in vowel formant trajectories. In *The Scottish Consortium for ICPbS 2015* (Ed.), Proceedings of the 18th International Congress of Phonetic Sciences. Glasgow, UK: the University of Glasgow. ISBN 978-0-85261-941-4.

Houde, J.F., Niziolek, C.A., Kort, N.S., Agnew, Z.K., and Nagarajan, S.S. (2014). Simulating a model of state feedback control of speaking. *Proceedings of the 10th Intl. Seminar on Speech Production*, Cologne, Germany, 2014.

Niziolek, C.A. and Guenther, F.H. (2014). When BED goes BAD: how the brain can fix mistakes in speech while they happen. *Frontiers in Neuroscience for Young Minds* 2:1.

Sitek, K., Mathalon, D.H., Roach, B.J., Houde, J.F., Niziolek, C.A., and Ford, J.M. (2013). Auditory cortex processes variation in our own speech. *PLOS ONE* 8(12):e82925.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2013). What does motor efference copy represent? Evidence from speech production. *The Journal of Neuroscience* 33(41):16110–16116.

Niziolek, C.A. and Guenther, F.H. (2013). Vowel category boundaries enhance cortical and behavioral responses to speech feedback alterations. *The Journal of Neuroscience* 33(29):12090–12098.

Chang, E.F*, Niziolek, C.A.*, Knight, R., Nagarajan, S.S., and Houde, J.F. (2013). Human cortical sensorimotor network underlying feedback control of vocal pitch. *Proceedings of the National Academy of Sciences* 110(7):2653–2658. * equal contribution

Houde, J.F., Kort, N.S., Niziolek, C.A., Chang, E.F. & Nagarajan, S.S. (2013). Neural evidence for state feedback control of speaking. In *Proceedings of Meetings on Acoustics* (ICA 2013 Montreal) 19:060178.

Patel, R., Niziolek, C., Reilly, K.J., and Guenther, F.H. (2011). Prosodic adaptations to pitch perturbation in running speech. *Journal of Speech, Language, and Hearing Research* 54(4):1051–1059.

INVITED TALKS

Niziolek, C.A. (2015). *Auditory cortical predictions of vocal feedback are task-dependent*. Cognitive Neuroscience Society satellite symposium, “Neural Bases of Speech Production,” San Francisco, California. March 27th, 2015.

Niziolek, C.A. (2014). *Correcting errors before they happen: cortical monitoring of auditory targets during speech*. Harvard Medical School / Massachusetts Eye and Ear Infirmary Eaton-Peabody Laboratories Seminar Series, Boston, Massachusetts. April 8th, 2014.

Niziolek, C.A. (2014). *Auditory self-monitoring catches speech errors before they happen*. VA Northern California Colloquium series, Martinez, California. February 11th, 2014.

Niziolek, C.A. (2013). *Speech error correction in correct speech*. Acoustical Society of America satellite symposium, “Neural Bases of Speech Production,” San Francisco, California. December 1st, 2013.

Niziolek, C.A. (2012). *Neural mechanisms of auditory feedback control in normal and perturbed speech*. Basque Center on Cognition, Brain and Language, San Sebastian, Spain. October 30th, 2012.

Houde, J.F. and Niziolek, C.A. (2012). *How is auditory feedback processed during speaking?* GIPSA-lab (Grenoble Images Parole Signal Automatique), Grenoble, France. October 24th, 2012.

Niziolek, C.A. (2011). *The role of linguistic contrasts in speech feedback control*. UC Berkeley Phonetics and Phonology Forum. February 7th, 2011.

ORAL PRESENTATIONS

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). Auditory predictions of self-produced speech are task-dependent. Program No. 16.10. 2015 Neuroscience Meeting Planner. Chicago, IL: *Society for Neuroscience*, 2015. Online.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). The contribution of auditory feedback to corrective movements in vowel formant trajectories. Presented at the *18th International Congress of Phonetic Sciences*. Glasgow, Scotland. August 10, 2015.

Niziolek, C.A. (2015). Auditory self-monitoring catches speech errors before they happen. UCSF Postdoctoral Neuroscience Seminar Series, San Francisco, California. February 9th, 2015.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2013). Feedback-driven corrective movements in speech in the absence of altered feedback.* Oral presentation given at the *166th Meeting of the Acoustical Society of America*, San Francisco, California.

***Lay-language paper invited for submission to the ASA World Wide Press Room**

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2012). Speaking-induced suppression in auditory cortex is determined by deviance from speech production targets. Program No. 14.09. 2012 Neuroscience Meeting Planner. New Orleans, LA: *Society for Neuroscience*, 2012. Online.

Chang, E.F., Niziolek, C.A., Knight, R.T., Nagarajan, S.S., and Houde, J.F. (2012). Auditory and premotor cortex modulation predicts compensatory responses to pitch perturbation. Program No. 14.14. 2012 Neuroscience Meeting Planner. New Orleans, LA: *Society for Neuroscience*, 2012. Online.

Niziolek, C.A., Houde, J.F., and Guenther, F.H. (2011). Feedback alterations across vowel category space. Oral presentation given at the *6th International Conference on Speech Motor Control*, Groningen, Netherlands.

Patel, R., Niziolek, C.A., Reilly, K.J., and Guenther, F.H. (2010). Prosodic compensations to pitch perturbations in running speech. Oral presentation given at the *Fifteenth Biennial Conference on Motor Speech*, Savannah, Georgia.

POSTERS

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). Auditory predictions of self-produced speech are task-dependent. Poster to be presented at the *Society for the Neurobiology of Language*, Chicago, Illinois.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). Neural encoding of auditory speech targets is task-dependent. Poster presented at the *21st Meeting of the Organization for Human Brain Mapping*, Honolulu, Hawaii.

Agnew, Z.K., Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). Evidence for shared mechanisms for compensation for and adaptation to speech errors. Poster to be presented at the *21st Meeting of the Organization for Human Brain Mapping*, Honolulu, Hawaii.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). Real-time speech feedback technologies for understanding motor control and as a training tool. *Entertainment Software and Cognitive Neurotherapeutics Society (ESCoNS) Meeting*, San Francisco, California.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). Shared mechanisms for speech error correction and sensorimotor learning. Poster presented at the *22nd Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, California.

Martin, C.D., Niziolek, C.A., Duñabeitia, J.A., Carreiras, M., and Houde, J.F. (2015). How to explain individual variability in speech motor control. Poster presented at the *22nd Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, California.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2014). Sensorimotor adaptation in speech and its effects on auditory monitoring. Program No. 631.14. *2014 Neuroscience Meeting Planner*. Washington, DC: *Society for Neuroscience*, 2014. Online.

Martin, C.D., Duñabeitia, J.A., Niziolek, C.A., Carreiras, M., and Houde, J.F. (2014). What affects auditory feedback in speech motor control? Poster presented at the *21st Annual Meeting of the Cognitive Neuroscience Society*, Boston, Massachusetts.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2014). Auditory self-monitoring catches speech errors before they happen. Poster presented at the *1st Bay Area Postdoctoral Research Symposium*, San Francisco, California.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2013). Internal vs. external deviations from auditory targets in speech. Program No. 751.09. *2013 Neuroscience Meeting Planner*. San Diego, CA: *Society for Neuroscience*, 2013. Online.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2013). Internal vs. external deviations from auditory targets in speech. Poster presented at the *Society for the Neurobiology of Language*, San Diego, California.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2013). Internal predictions and auditory goals for speech. Poster presented at the *19th Meeting of the Organization for Human Brain Mapping*, Seattle, Washington.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2013). Goal-based auditory predictions of self-produced speech. Poster presented at the 20th Annual Meeting of the *Cognitive Neuroscience Society*, San Francisco, California.

Sitek, K.R., Roach, B., Mathalon, D.H., Houde, J.F., Niziolek, C.A., and Ford, J.M. (2013). Speakers process their own utterances relative to the preceding utterance. Poster presented at the 40th Annual Scientific and Technology Conference of the *American Auditory Society*, Scottsdale, Arizona.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2012). Neural predictions of auditory vocal feedback are task-specific. Poster presented at the *Neurobiology of Language Conference*, San Sebastian, Spain.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2011). Feedforward vocal predictions characterized by speaking-induced suppression of auditory cortex. Poster presented at the *Neurobiology of Language Conference*, Annapolis, Maryland.

Niziolek, C.A. and Guenther, F.H. (2010). Phonetic categories influence auditory feedback control of speech. Program No. 593.7. 2010 Neuroscience Meeting Planner. San Diego, CA: *Society for Neuroscience*, 2010. Online.

Chang, E.F., Nagarajan, S., Niziolek, C.A., Knight, R., and Houde, J. (2010). Cortical mechanisms of auditory feedback underlying speech motor control. Program No. 275.25. 2010 Neuroscience Meeting Planner. San Diego, CA: *Society for Neuroscience*, 2010. Online.

Niziolek, C.A. and Guenther, F.H. (2009). The influence of perceptual categories on auditory feedback control during speech. Poster presented at the *15th Meeting of the Organization for Human Brain Mapping*, San Francisco, California.

Patel, R., Campellone, P., Reilly, K.J., Niziolek, C.A., and Guenther, F.H. (2008). Prosodic compensations to pitch perturbation during running speech. Poster presented at the *Fourteenth Biennial Conference on Motor Speech*, Monterey, California.

TEACHING AND OUTREACH

Guest Lecturer, Dept. of Health Sciences, Boston University 2015
SAR HS361/CAS NE360: Introduction to Computational Neuroscience of Speech, Language, and Hearing
Course Director: Prof. Jason Bohland
“The role of feedback in speech: delayed and altered feedback studies”

Teaching Assistant, Dept. of Neuroscience, UCSF 2015
NS219: Neuroscience of Speech Perception and Production
Course Directors: Profs. Christoph Schreiner & John Houde
Assisted with selection of course readings; led discussion of perception-production interactions.

- Organizer**, Future of Research symposium, Boston 2015
Served on the organizational committee for the symposium, which addressed critical challenges affecting the biomedical research enterprise through seminars and moderated discussions.
- Review Editor Mentor**, *Frontiers in Neuroscience for Young Minds* 2013–2015
Mentored young students in reviewing kid-focused scientific manuscripts.
- Mentor**, UCSF Biomagnetic Imaging Laboratory 2011–2015
Megan Thompson, graduate student in bioengineering (2014–2015)
Hardik Kothare, research assistant (2014–2015)
Roshni Ravindran, undergraduate research assistant (2014)
Will Schuerman, visiting graduate student in psycholinguistics (2013–2014)
Noriko Tonigawa, research assistant (2012–2015)
Jeevit Gill, undergraduate research assistant (2011–2014)
Ben Dichter, graduate student in bioengineering (2013)
Keshi Jordan, graduate student in bioengineering (2012–2013)
Christopher Constantine, undergraduate research assistant (2012)
Chiara Bertolini, speech-language pathology student (2012)
Laura Visentin, speech-language pathology student (2012)
- Lecturer and Lesson Planner**, Bio&Chem Teach Program 2012
UCSF Science & Health Education Partnership
Developed and taught a week of lessons and labs for high school biology students.
- Teaching Assistant**, Dept. of Neuroscience, UCSF 2011
NS219: Neuroscience of Speech Perception and Production
Course Directors: Profs. Christoph Schreiner & John Houde
Led discussions of scientific articles in speech perception, production, and modeling.
- Teaching Fellow**, Dept. of Neurobiology, Harvard University 2007–2008
NB101: Auditory Neurobiology of Language and Music
Course Directors: Profs. Mark Tramo & Jonathan Matsui
Taught weekly 1.5-hour sections, lectured, wrote problem sets and final exam, gave final grades.
- Guest Lecturer**, Dept. of Health Sciences and Technology, Harvard-MIT 2006–2008
Tutorial: Cognitive Neuroscience and Psychology
Lectured and gave lab demonstrations as part of a tutorial series for first-year graduate students.
- Associate Advisor**, Freshman Arts Seminar Advising Program, MIT 2002–2008
Volunteered as a peer advisor to first-year undergraduate students.

REVIEW

- Reviewer, *Proceedings of the Royal Society B* 2014–present
Reviewer, *Frontiers in Neuroscience* 2014–present

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| Reviewer, The Journal of Neuroscience | 2014–present |
| Review Editor, Frontiers in Human Neuroscience | 2013–present |
| Review Editor Mentor, Frontiers in Neuroscience for Young Minds | 2013–present |
| Reviewer, NeuroImage | 2013–present |
| Reviewer, Psychological Science | 2013–present |
| Reviewer, Journal of the Acoustical Society of America | 2013–present |
| Judge, Acoustical Society of America Student Poster Competition | 2013 |
| Reviewer, Organization for Human Brain Mapping | 2012–present |
| Reviewer, Society for the Neurobiology of Language | 2011–present |

COMPUTER SKILLS

Linux and Windows operating systems, Matlab, Scheme, HTML/CSS, neuroimaging analysis (SPM, FreeSurfer, FSL, Nipype, NUTMEG), audio analysis (Praat, Audacity), version control (Git, Github, Mercurial, Subversion), Adobe Creative Suite (Photoshop, Illustrator, InDesign, Flash), common applications (MS Office, emacs, etc.)

I wrote and maintain the code for FUSP lite, a software library for the Feedback Utility for Speech Processing system developed by John Houde: github.com/carrien/fusp_lite and for wave_viewer, a speech analysis GUI: github.com/carrien/wave_viewer

OTHER PROJECTS, ACTIVITIES, & INTERESTS

My hobbies include graphic design, letterpress printing, rock climbing, sailing, singing (a cappella and in a rock band), and volunteer mentoring. I speak French and can bake a mean profiterole.

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| Future of Research Boston (futureofresearch.org) Symposium organizer | 2015–present |
| Society for the Neurobiology of Language, logo design Design competition winner | 2011–present |
| Topiary Press, typographic design and letterpress printing Shop owner/artist | 2011–present |
| Society for Neuroscience, Hearing and Balance Social musical entertainment Singer, <i>The Gamma Band</i> | 2010, 2012 |
| The Linux Foundation, musical score (<i>Challenges at the Office</i>) “We’re Linux” contest finalist | 2009 |
| Harvard-MIT Health Sciences and Technology, shirt design Design competition winner | 2009 |
| Ultrasonic Rock Orchestra Singer, <i>A Night at the Rock Opera</i> , Wilbur Theatre, Boston | 2007–2008 |