
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 *PI: Swathi Kiran*
- UCSF Biomagnetic Imaging Laboratory, San Francisco, CA** 2010–2015
Postdoctoral Scholar *PIs: John Houde & Srikantan Nagarajan*
- MIT Speech Communication Group / BU Speech Lab, Cambridge, MA** 2005–2010
Graduate Research Assistant *PI: Frank Guenther*
- MIT Computational Cognitive Science Lab, Cambridge, MA** 2003–2005
Undergraduate Research Assistant *PI: Joshua Tenenbaum*
- CNRS Laboratoire de Neurosciences Cognitives, Marseille, France** 2004
Research Assistant *PI: Mireille Besson*

AWARDS AND GRANTS

- NIH Pathway to Independence Award (K99/R00)** 2015–2020
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 (F32)** 2011–2014
F32 Grant (PI): 1F32DC011249
Title: Phonetic influences on auditory feedback control

ASHA “Lessons for Success” Conference Fellow	2017
Saffran Student Scholar Award	2016
BU Dudley Allen Sargent Research Fund Faculty/Post-doctoral Competition Seed grant to support undergraduate mentee	2016
BU Clinical & Translational Science Institute Funding Opportunity Award	2016
BU Professional Development & Postdoctoral Affairs Travel Award	2016
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

MANUSCRIPTS SUBMITTED OR IN PREPARATION

Niziolek, C.A. and Kiran, S. (submitted). Assessing speech error correction abilities with acoustic analyses: evidence of preserved online correction in persons with aphasia. Submitted to the *International Journal of Speech-Language Pathology*.

Martin, C.D., **Niziolek, C.A.**, Duñabeitia, J.A., Perez, A., Hernandez, D., Carreiras, M., and Houde, J.F. (submitted). Individual variability in sensorimotor adaptation in speech: On the role of auditory acuity and executive control. Submitted to *PLOS ONE*.

Heggeness, M.L, Gunsalus, K.T.W., Pacas, J., Lijek, R., Riglar, D.T., Goodwin, P.R., Walsh-Michel, E., Weismann, C.M., **Niziolek, C.A.**, Mazzilli, S.A., Polka, J.K., and McDowell, G.S. (submitted). The U.S. biomedical workforce: Using historical decennial census data to inform policies, programs, and career decision-making. Submitted to *Nature*.

Niziolek, C.A., Bouchard, K.E., Anumanchipalli, G.K., Dichter, B., Hamilton, L.S., and Chang, E.F. (in preparation). Speech feedback processing in human auditory cortex.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (in preparation). Task-dependent auditory predictions of self-produced speech.

Niziolek, C.A. and Agnew, Z.K. (in preparation). Predictably unpredictable: how neural suppression encodes the auditory consequences of motor acts.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (in preparation). The contribution of auditory feedback to corrective movements in vowel formant trajectories.

Niziolek, C.A., Beach, S.D., and Kiran, S. (in preparation). Speech acoustics are modulated by cognitive interference in a vowel-modified Stroop task.

PEER-REVIEWED PUBLICATIONS

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. (2017). *How do categorical goals affect continuous speech dynamics?* Ludwig-Maximilians-Universität München Institute of Phonetics and Speech Processing, Workshop on Abstraction, Diversity, and Speech Dynamics, Herrsching am Ammersee, Germany. May 3-5, 2017.

Niziolek, C.A. (2016). *Correcting errors before they happen: cortical prediction of auditory targets during speech.* NYU Communicative Sciences and Disorders Colloquium series, New York, New York. February 9th, 2016.

Niziolek, C.A. (2016). *Assessing the neurophysiological causes of speech production errors in patients with aphasia.* Boston Speech Motor Control Working Group, Boston, Massachusetts. January 25th, 2016.

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. (2017). Speech error detection and correction in persons with aphasia. Presented at the *Language Processing and Recovery in Aphasia Symposium*, Boston, Massachusetts. April 20, 2017.

Niziolek, C.A. (2016). Modulation of sensory systems before & during speech production: typical & disordered speech. Seminar presented at the annual convention of the *American Speech-Language-Hearing Association*, Philadelphia, Pennsylvania. November 19, 2016.

Niziolek, C.A. and Kiran, S. (2016). Behavioral and neural measures of error detection and correction in persons with aphasia. Platform session presented at the *Academy of Aphasia 54th Annual Meeting*. Llandudno, Wales, UK. October 17, 2016.

Niziolek, C.A. (2016). Speech error detection and correction in persons with aphasia. Presented at the *Sensorimotor Speech Processing Symposium*. London, UK. August 16, 2016.

Niziolek, C.A. (2016). Real-time processing of speech feedback and its effect on everyday speech. Boston University Postdoc Annual Retreat, Boston, Massachusetts. April 4th, 2016.

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.* Presented 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. Presented 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. Presented at the *Fifteenth Biennial Conference on Motor Speech*, Savannah, Georgia.

POSTERS

Beach, S.D., Niziolek, C.A., and Kiran, S. (2017). Neural decoding of word identity and acoustic prototypicality during speech perception in listeners with and without aphasia. *Sixth International Conference on Auditory Cortex*, Banff, Canada.

Niziolek, C.A., Lin, K.R., Beach, S.D., Quillen, I.A., and Kiran, S. (2017). Speech acoustics are modulated by cognitive interference in a vowel-modified Stroop task. 173rd Meeting of the *Acoustical Society of America*, Boston, Massachusetts.

Niziolek, C.A., Quillen, I.A., Lin, K.R., Beach, S.D., and Kiran, S. (2017). Cognitive interference modulates speech acoustics in a vowel-modified Stroop task. 24th Annual Meeting of the *Cognitive Neuroscience Society*, San Francisco, California.

Niziolek, C.A. and Kiran, S. (2016). Assessing speech error detection and correction abilities in patients with aphasia: MEG and behavioral evidence. *11th Annual Eleanor M. Saffran Cognitive Neuroscience Conference*, Philadelphia, PA.

Niziolek, C.A. and Kiran, S. (2016). Assessing error detection and correction abilities in patients with aphasia. *Society for the Neurobiology of Language*, London, UK.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2016). Auditory feedback guides online corrections to vowel acoustics. *Eighteenth Biennial Conference on Motor Speech*, Newport Beach, California.

Niziolek, C.A., Nagarajan, S.S., and Houde, J.F. (2015). Auditory predictions of self-produced speech are task-dependent. *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. *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. *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. 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. 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? 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. *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. *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. *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. 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. *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. *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. *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. *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. *Fourteenth Biennial Conference on Motor Speech*, Monterey, California.

TEACHING EXPERIENCE

Guest Lecturer, Dept. of Speech, Language & Hearing Sciences, Boston U. 2016
SAR SH 522: Anatomy and Physiology of the Speech Mechanism
Course Director: Prof. Adele Raade
“Nervous System and Cranial Nerves”

Guest Lecturer, SCERCH Spring Cross-Program Event, Boston University 2016
Sargent College Committee to Enhance Research Collaboration in Health & Rehabilitation

Guest Lecturer, Dept. of Health Sciences, Boston University 2015
SAR HS 361/CAS NE 360: Introduction to Computational Neuroscience of Speech, Language, and Hearing
Course Director: Prof. Jason Bobland
“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.

Science Teaching Effectiveness Program for Upcoming Professors 2015
Enrolled in four-day course at UCSF Office of Career and Professional Development, covering teaching effectiveness, course design and classroom management theory, and curriculum design.

Lecturer and Lesson Planner , Bio&Chem Teach Program UCSF Science & Health Education Partnership Developed and taught a week of lessons and labs for high school biology students.	2012
Teaching Assistant , Dept. of Neuroscience, UCSF <i>NS219: Neuroscience of Speech Perception and Production</i> <i>Course Directors: Profs. Christoph Schreiner & John Houde</i> Led discussions of scientific articles in speech perception, production, and modeling.	2011
Teaching Fellow , Dept. of Neurobiology, Harvard University <i>NB101: Auditory Neurobiology of Language and Music</i> <i>Course Directors: Profs. Mark Tramo & Jonathan Matsui</i> Taught weekly 1.5-hour sections, lectured, wrote problem sets and final exam, gave final grades.	2007–2008
Guest Lecturer , Dept. of Health Sciences and Technology, Harvard-MIT <i>Tutorial: Cognitive Neuroscience and Psychology</i> Lectured and gave lab demonstrations as part of a tutorial series for first-year graduate students.	2006–2008

MENTORING EXPERIENCE

Ph.D. students

Sara Beach, Harvard Speech and Hearing Bioscience and Technology Program	2016–present
Megan Thompson, UCSF/Berkeley Graduate Program in Bioengineering	2014–2015
Will Schuerman, visiting student, Max Planck Institute for Psycholinguistics	2013–2014
Ben Dichter, UCSF/Berkeley Graduate Program in Bioengineering	2013
Kesshi Jordan, UCSF/Berkeley Graduate Program in Bioengineering	2012–2013

Full-time research assistants

Hardik Kothare, graduate research assistant, UCSF	2014–2015
Noriko Tonigawa, graduate research assistant, UCSF	2012–2015
Jeevit Gill, undergraduate research assistant, UCSF	2011–2014

Summer or part-time research assistants

Kimberly Lin, part-time undergraduate research assistant, BU	2016–2017
Ian Quillen, summer undergraduate research assistant, BU	2016
Roshni Ravindran, summer undergraduate research assistant, UCSF	2014
Christopher Constantine, summer undergraduate research assistant, UCSF	2012
Chiara Bertolini, visiting speech-language pathology student, UCSF	2012
Laura Visentin, visiting speech-language pathology student, UCSF	2012

Thesis committees

Ian Quillen, undergraduate thesis in neuroscience, BU	2017
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SCIENCE OUTREACH

- Board of Directors**, Future of Research, Inc. 2015–present
Science advocacy group addressing critical challenges affecting the biomedical research enterprise.
- Science Mentor**, Frontiers for Young Minds (Understanding Neuroscience) 2013–present
Role: to coordinate and guide classrooms in reviewing kid-focused scientific manuscripts.
- Speaker**, NatureJobs Career Expo Boston 2016
Ran workshop, *Improving Career Development Resources for Graduate Students & Postdocs*, with fellow Future of Research members Patricia Goodwin, Kearney Gunsalus, and Cara Weismann.
- Associate Advisor**, Freshman Arts Seminar Advising Program, MIT 2002–2008
Volunteered as a peer advisor to first-year undergraduate students.

REVIEW

- Reviewer, Cerebral Cortex 2016–present
Reviewer, National Science Foundation 2016–present
Reviewer, Human Brain Mapping 2016–present
Review Editor, Frontiers in Auditory Cognitive Neuroscience 2016–present
Reviewer, Proceedings of the Royal Society B 2014–present
Reviewer, Frontiers in Neuroscience 2014–present
Reviewer, The Journal of Neuroscience 2014–present
Review Editor, Frontiers in Human Neuroscience 2013–present
Review Editor Mentor, Frontiers 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, 2017
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 developed and maintain the code for the following software packages:

- FUSP lite, a software library for the Feedback Utility for Speech Processing system developed by John Houde: github.com/carrien/fusp_lite
- wave_viewer, a waveform analysis GUI: github.com/carrien/wave_viewer

- Free Speech, speech analysis and plotting code: github.com/carrien/free-speech

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.

Future of Research, Inc. (<i>futureofresearch.org</i>) Board of Directors	2015–present
Topiary Press, typographic design and letterpress printing Shop owner/artist	2011–present
Green Apple Books, shirt design Design competition winner	2014
Society for Neuroscience, Hearing and Balance Social musical entertainment Singer, The Gamma Band	2010, 2012
Society for the Neurobiology of Language, logo design Design competition winner	2011
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, A Night at the Rock Opera, Wilbur Theatre, Boston	2007–2008