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Education:

2009 **Ph.D. in Biomedical Engineering**
Speech and Hearing Bioscience and Technology Program
Division of Health Sciences & Technology
Harvard University - Massachusetts Institute of Technology, Cambridge, MA
Thesis: *Characterization and Improvement of the Clinical Assessment of Vocal Hyperfunction*

2008 **S.M. in Electrical Engineering and Computer Science**
Department of Electrical Engineering and Computer Science
Massachusetts Institute of Technology, Cambridge, MA
Thesis: *Electromyographic Control of Prosthetic Voice after Total Laryngectomy*

2004 **S.B. in Engineering Science**
Picker Engineering Program
Smith College, Northampton, MA
Cum Laude, Highest Honors in Engineering Science
Thesis: *The Acoustics of the Human Middle-Ear Air Space*

Academic Appointments:

2016 – present Faculty, Executive Board Member, Center for Research in Sensory Communication and Emerging Neural Technology (CRESCENT), Boston University
2015 – present Assistant Professor, Department of Otolaryngology, School of Medicine, Boston University
2014 – present Affiliated Faculty, Undergraduate Program in Neuroscience, Boston University
2014 – present Visiting Scientist, Boston Children's Hospital
2013 – 2015 Faculty, Center of Excellence for Learning in Education, Science and Technology (CELEST), Boston University
2011 – 2016 Faculty, Hearing Research Center, Boston University
2011 – 2016 Faculty, Center for Computational Neuroscience and Neural Technology, Boston University
2011 – present Training Faculty, Graduate Program for Neuroscience (GPN), Boston University
2011 – present Training Faculty, GPN – Computational Specialization, Boston University
2011 – present Assistant Professor, Department of Biomedical Engineering, Boston University
2011 – present Assistant Professor, Department of Speech, Language, and Hearing Sciences, Boston University (*primary*)
2009 – 2011 Postdoctoral Research Associate, Department of Computer Science and Engineering, University of Washington
2009 – 2011 Senior Fellow, Department of Rehabilitation Medicine, University of Washington

Awards and Honors:

2017 Second place, Best Poster Award, The Voice Foundation Annual Symposium
2016 First place, Best Poster Award, The Voice Foundation Annual Symposium
2015 American Speech-Language-Hearing Association Research Mentoring-Pair Travel Award (Mentor of Carolyn Novaleski)
2015 Second place, Best Poster Award, The Voice Foundation Annual Symposium
2015 – 2020 National Science Foundation Faculty Early Career Development (CAREER) award
2014 – 2017 Junior Faculty Fellow, Hariri Institute for Computing and Computational Science and Engineering, Boston University
2013 American Speech-Language-Hearing Association Research Mentoring-Pair Travel Award (Mentor of Stephanie Lien)
2013 Boston University Clinical and Translational Science Institute K-L2 Fellowship

2013	Travel Fellowship, Invited Discussant, International Workshop on Brain-Machine Interface Systems
2012 – 2015	Peter Paul Career Development Professorship, Boston University
2012	American Speech-Language-Hearing Association Award for Early Career Contributions in Research
2012	Conference Fellowship, ASHA/NIDCD Lessons for Success Research Conference
2011	NSF Neural Engineering Travel Award
2010	Student Excellence in Neural Interfacing Travel Award
2009	American Society of Neurorehabilitation (ASNR) Presidential Award
2009	NIH T32 Fellowship for postdoctoral study in Rehabilitation Science at UW
2008	Raymond H. Stetson Scholarship in Phonetics and Speech Science, Honorable Mention
2004	NIH T32 Fellowship for graduate study in Harvard-MIT SHBT Program
2004	Adeline Devor Penberthy Memorial Prize (Smith College Engineering)
2004	NSF Graduate Fellowship, Honorable Mention
2004	Phi Beta Kappa (science and arts honor society)
2004	Sigma Xi (research honor society)
2004	Tau Beta Kappa (Smith College engineering honor society)

Current Research Funding as Principal Investigator

NIH NIDCD R01 DC015570 Stepp (PI) 07/01/16-06/30/21
An acoustic estimate of laryngeal tension for clinical assessment of voice disorders
Role: PI
The goal of this project is to systematically validate relative fundamental frequency as a measure of laryngeal tension in two voice disorder populations that span age and etiology (functional vs. neurological). We will examine the measure's diagnostic sensitivity and specificity to the presence of these voice disorders and its sensitivity to changes in laryngeal tension.
$1,299,304 direct + $782,979 indirect = $2,082,281

NIH NIDCD P50 DC015446 Hillman (PI) 04/01/17-03/31/22
Clinical Research Center for the Improved Prevention, Diagnosis, and Treatment of Vocal Hyperfunction
Role: Project PI (Project 2)
The goal of this Clinical Research Center is to better understand vocal hyperfunction. The proposal includes three core centers and three projects. The aims of Project 2, "Sensorimotor mechanisms of vocal hyperfunction", are to determine the functional role of auditory feedback in the vocal control of individuals with vocal hyperfunction and the effect of voice therapy on that control.
Project 2: $1,250,050 direct + $810,034 indirect = $2,060,084

NSF, CHS (CSE) & GARDE (ENG) 1452169 Stepp (PI) 04/01/15-03/31/20
CAREER: Enabling Enhanced Communication through Human-Machine-Interfaces
Role: PI
The research goals of this study are to develop personalized head and neck muscle control techniques and communication interfaces based on human speech production and perception to increase information transfer rates relative to currently available human-machine-interfaces.
$336,111 direct + $201,426 indirect = $537,538

NSF GARDE (ENG) 1510563 Stepp (PI) 07/01/15-06/30/18
Prosodic control of speech synthesis for assistive communication in severe paralysis
Role: Multiple PI (with Susan Fager at Madonna Rehabilitation Hospital, Lincoln, NE)
The research objective of this proposal is to test the hypothesis that providing users of alternative and augmentative communication (AAC) with a method for one-dimensional prosodic control will result in speech synthesis that is more natural to listeners and provides greater function to users.
BU budget: $132,964 direct + $84,707 indirect = $217,670

Current Research Funding as Co-Investigator

NSF PAC (SBE) 1655287 Bohland (PI) 03/01/17-02/28/20

The effects of delayed auditory feedback on speech sequencing: acoustics, physiology, and computational modeling
Role: co-I
The research objective of this proposal is to determine the role that auditory feedback plays in the online sequencing of speech sounds. As co-I, I will mentor one of the doctoral students and will lead experiments to measure the behavioral responses to frequency-shifted feedback, auditory acuity, and kinematic measures of speech production, which will take place in my lab.
$288,593 direct + $186,907 indirect = $475,500

NIH NIDCD R01 R01DC002852-21 Guenther (PI) 08/01/16-07/31/21
Neural Modeling and Imaging of Speech
Role: co-I
The overall goal of this study is to improve our understanding of the neural mechanisms that underlie speech production and their breakdown in voice disorders. Co-I Stepp will collaborate on Aim 3, the specific goal of which is to investigate somatosensory feedback control of phonation in individuals with the voice disorder adductor spasmodic dysphonia (ADSD).
$1,250,000 direct + $811,146 indirect = $2,061,146

Current Trainee Research Funding

NIH NIDCD F31 DC016197 Heller Murray (Trainee) 07/01/17-6/30/20
Vocal motor control in children with vocal nodules
Role: Sponsor
The goal of this fellowship application is to provide Ms. Heller Murray with the experiences and training to develop a research career in the area of clinical voice science. The research proposes to test the hypothesis that children with nodules have disordered auditory-motor integration.
$117,204 direct + $0 indirect = $117,204

NIH NIDCD F31 DC014872 Cler (Trainee) 09/01/15-08/30/18
Optimization and prediction for fast and robust AAC
Role: Sponsor
The goal of this fellowship application is to provide Ms. Cler with the training to develop a research career in the area of quantitative design of alternative and augmentative communication (AAC) technology. The research proposes to improve communication rates of AAC users by reducing the time it takes users to select targets by novel arrangement of phonemic targets and dynamically enlarging targets likely to be selected next, thus increasing the size of the target and reducing the time it takes to make a selection.
$114,338 direct + $0 = $114,338

Dudley A. Sargent Research Fund McKenna (Trainee) 06/01/16-10/31/17
Physiological mechanisms of vocal effort
Role: Mentor
The goal of this project is to comprehensively evaluate four physiological mechanisms hypothesized to mediate vocal effort in healthy adults.
$5,000 direct + $0 = $5,000

Pending Research Funding

NIH NIDCD R01 Stepp (PI) 05/01/18-04/30/23
Voice and speech sensorimotor control in Parkinson's disease
Role: Multiple PI (with Frank Guenther, Boston University)
The goal of this project is to assess feedback and feedforward mechanisms, voice and articulation, and auditory and somatosensory modalities of speech motor control in Parkinson's disease using behavioral and neuroimaging paradigms, all in relation to functional speech outcomes (intelligibility and naturalness).
$1,926,926 direct + $1,252,184 indirect = $3,179,107

Completed Research Funding

NIH NIDCD R03DC012651 Stepp (PI) 03/05/13-02/28/16
Automation of Relative Fundamental Frequency Estimation NC through 2/28/17
Role: PI
The goal of this project is to develop clinical collection protocols and signal processing tools for automatic estimation of relative fundamental frequency in speakers with typical and disordered voice.
$300,000 direct + $180,927 indirect = $480,927

NIH NIDCD R42DC011212 (Phase II STTR) Robertson (PI) 07/01/13-6/30/15
Development of an Electromyographically Controlled Electrolarynx Voice Prosthesis
Role: Subcontract PI
The objective of this project is to develop and test an electromyographically controlled EL that can be offered commercially to improve the communication of electrolarynx users.
Total Award Amount: $978,501
Subward to BU: $30,027 direct + $19,307 indirect = $49,334

Deborah Munroe Noonan Memorial Research Fund Stepp (PI) 09/01/13-08/31/14
Videogame-Based Speech Rehabilitation for Children with Hearing Loss
Role: PI
The goal of this project is to develop a new rehabilitative platform for individuals with hearing loss using a sensor we have designed to measure skin vibration and speech acoustics and to conduct feasibility testing in children with hearing loss to determine the potential short-term gains in speech function possible with this type of intervention.
$72,000 direct + $8,000 indirect = $80,000

American Speech-Language-Hearing Foundation Stepp (PI) 01/01/13-12/31/13
Improving the reliability of estimates of voice relative fundamental frequency
Role: PI
New Century Scholars Research Grant: to develop a corpus of text tokens resulting in maximally internally consistent relative fundamental frequency (RFF) estimates and to determine whether the reliability of RFF estimation is improved by using a measurement of voice-related neck tissue vibration using a small skin-surface accelerometer instead of acoustics.
$10,000 direct + $0 = $10,000

ALA-Nestle Nutrition Institute Dysphagia Research Grant Stepp (PI) 07/01/12-06/30/13
Voluntary Control of Anterior Neck Musculature in Parkinsonian Dysphagia
Role: PI
The goal of this project is to investigate the abilities of individuals with dysphagia due to Parkinson's Disease to perform voluntary control of anterior neck musculature through interaction with an electromyographic videogame.
$10,000 direct + $0 indirect = $10,000

American Speech-Language-Hearing Foundation Stepp (PI) 01/01/12-12/31/12
Voluntary Control of Anterior Neck Musculature in Dysphagia
Role: PI
New Investigator Grant: to investigate the abilities of individuals with post-stroke dysphagia to perform voluntary control of anterior neck musculature through interaction with an electromyographic videogame.
$5,000 direct + $0 indirect = $5,000

Boston Rehabilitation Outcomes Center Pilot Grants Stepp (PI) 06/01/14-05/31/15
Identifying motor performance outcome measures that underlie speech intelligibility in Parkinson's disease
Role: PI
The goal of this project is to develop motor outcome measures that correlate with functional measures of speech intelligibility in PD. Biosignals recorded during a variety of motor tasks will be examined in order to find optimal instrumented outcomes of motor function underlying speech intelligibility in PD.

$30,414 direct + $1,986 indirect = $32,400

Hariri Research Award, Boston University Stepp (PI) 07/01/15-06/30/16
NinjaGame: Optimizing Neuroplasticity through Speech-driven Gameplay
Role: PI
The goal of this grant is to enhance current software to provide feedback about speech production in a cross-platform manner that incorporates the latest technologies and software engineering practices, resulting in a software application that will have greater longevity. This updated software will be used to study how immersive gaming can optimize neuroplasticity to promote speech rehabilitation.
$20,000 direct + $0 indirect = $20,000

BU Center of Excellence for Learning in Education, Science and Technology Stepp (PI) 03/01/15-02/28/16
Increasing usability of human-machine-interfaces through novel sensorimotor inputs
Role: PI
The goal of this project is to develop tactile and auditory inputs to human-machine-interfaces (HMIs) for the BU Unlock framework in order to provide communication for a wider array of individuals with severe motor impairments.
$87,597 direct + $0 indirect = $87,597

BU Center of Excellence for Learning in Education, Science and Technology Stepp (PI) 03/01/14-02/28/15
Increasing usability of human-machine-interfaces through novel sensorimotor inputs
Role: PI
The goal of this project is to develop tactile and muscular (sEMG) inputs to human-machine-interfaces (HMIs) for the BU Unlock framework in order to provide communication for a wider array of individuals with severe motor impairments.
$72,087 direct + $0 indirect = $72,087

Boston University Grants for Undergraduate Teaching and Scholarship Program 11/01/12-06/30/13
Undergraduate Research on the Effects of Modality on Sensory-Motor Learning
Role: PI
The goals of this project are to implement and pilot test use of tactile feedback for human-machine-interface (HMI) control and to design and test healthy participant performance using auditory, visual, and tactile feedback for HMI control.
$1,850 direct + $0 indirect = $1,850

Coulter Translational Partnership Award Budson (PI) 08/01/15 – 07/31/16
Effectiveness of home-based electronic cognitive therapy in Alzheimer's disease
Role: Co-PI (with Andrew Budson and Swathi Kiran)
This project proposes the development of the Constant Therapy home-based electronic therapy program for patients with mild cognitive impairment due to Alzheimer's disease and patients with mild Alzheimer's disease dementia to improve their cognitive ability and quality of life.
$149,854 direct + $0 indirect = $149,854

Coulter Translational Partnership Award Kiran (PI) 07/01/12-6/30/13
Constant Therapy: a tablet therapy platform for speech language therapy for individuals with brain damage
Role: co-PI (with Swathi Kiran)
The goal of this project is to create an online health system that provides ongoing rehabilitation services to patients via iPads, iPhones, and the Web.
$124,000 direct + $0 indirect = $124,000

NIH NCATS KL2TR000158 Center (PI) 01/01/13-04/30/13
Boston University Clinical and Translational Science Institute Fellowship (KL-2)
Role: Trainee
The goal of this project is to provide protected time and research mentoring for selected junior faculty in clinical and translational sciences.

$19,035 direct + $0 indirect = $19,035

Dudley A. Sargent Research Fund Stepp (PI) 05/01/12-04/30/13
Improving the reliability of RFF-based measures of voice production
Role: PI
The goal of this project is to develop a corpus of text tokens results in maximally internally consistent RFF (relative fundamental frequency) estimates and to determine whether the reliability of RFF estimation is improved by the use of neck acceleration.

$6,905 direct + $0 indirect = $6,905

Boston University Integrated Biomedical Pilot Grant Program Stepp (PI) 07/01/12-04/30/13
Nasal acceleration for ambulatory monitoring of nasality in VPD
Role: PI
The goal of this project is to determine the relationships between normalized nasal acceleration and nasalance in pediatric population with velopharyngeal disorders (VPD) and to determine the usability of normalized nasal acceleration in the same population.

$19,084 direct + $0 indirect = $19,084

University of Washington Stolov Research Grant Stepp (PI) 05/01/10-05/01/11
Augmentative vibrotactile feedback for control of a prosthetic hand
Role: PI
The goal of this project was to systematically investigate the relative impact of force-based vibrotactile stimulation at multiple body locations and with alternative stimulation paradigms, to identify optimal modes of stimulus presentation for object manipulation.

$1,312 direct + $0 = $1,312

Completed Trainee Research Funding

Dudley A. Sargent Research Fund Heller Murray (Trainee) 06/01/14-10/31/15
Effect of visual feedback on velopharyngeal port control
Role: Mentor
The goal of this project is assess healthy adults' ability to control velopharyngeal port opening and to generalize control to untrained words, with and without noninvasive visual feedback.

$4,400 direct + $0 = $4,400

Refereed Journal Publications († denotes student / post-doctoral mentee):

52] MacPherson M.K., Abur D.A.†, **Stepp C.E.** "Acoustic measures of voice and physiologic measures of autonomic arousal during speech as a function of cognitive load", Journal of Voice, *In Press.*

51] Kaneoka A.†, Pisegna J.M., Krisciunas G.P., Takaharu N., **Stepp C.E.**, LaValley M.P., Langmore S.E. "Clinical reliability and safety of the touch method of laryngeal sensory testing", American Journal of Speech-Language Pathology, *In Press*.

50] Cler G.J.†, Mittelman T.†, Braden M.N., Harvey-Woodnorth G., **Stepp C.E.** "Videogame Rehabilitation of Velopharyngeal Dysfunction: A Case Series", Journal of Speech, Language, and Hearing Research, 60(6S), pp. 1800-1809, 2017.

49] Cler G.J.†, Lee J.C., Mittelman T.†, **Stepp C.E.**, Bohland J.W. "Kinematic analysis of speech sound sequencing errors induced by delayed auditory feedback", Journal of Speech, Language, and Hearing Research, 60(6S), 1695-1711, 2017.

48] Heller Murray E.S.†, Lien Y.S.†, Michener C.M.†, Calabrese C.†, Van Stan J., Mehta D.D., Hillman R.E., Noordzij J.P., **Stepp C.E.** "Relative fundamental frequency distinguishes between non-phonotraumatic and phonotraumatic vocal hyperfunction", Journal of Speech, Language, and Hearing Research, 60(6), pp. 1507-1515, 2017.

47] **Stepp C.E.**, Lester-Smith, R.A.†, Abur D.A.†, Daliri A., Noordzij J.P., Lupiani, A.† "Evidence for Auditory-Motor Impairment in Individuals with Hyperfunctional Voice Disorders", Journal of Speech, Language, and Hearing Research, 60(6), pp. 1545-1550, 2017.

46] McKenna V.S.†, Heller Murray E.S.†, Lien Y.S.†, **Stepp C.E.** "The Relationship Between Relative Fundamental Frequency and a Kinematic Estimate of Laryngeal Stiffness in Healthy Adults", Journal of Speech, Language, and Hearing Research, 59(6), pp. 1283-1294, 2016. [PMC5399757]

45] Heller Murray E.S.†, Girouard K.†, Cler M.C.†, **Stepp C.E.** "Development of an Electronic Documentation System for Voice Therapy: A New Teaching and Clinical Research Tool", Perspectives of the ASHA Special Interest Groups SIG 3, 1(3), pp. 63-73, 2016. (Invited)

44] Heller Murray, E.S.†, Mendoza J.O.†, Gill S.V., Perkell J.S., **Stepp C.E.** "Effects of biofeedback on control and generalization of nasalization in typical speakers", Journal of Speech, Language, and Hearing Research, 59(5), pp. 1025-1034, 2016. [PMC5345552]

43] Cler M.C.†, Lien Y.S.†, Braden M.N., Mittelman T.†, Downing K.†, **Stepp C.E.**. "Objective Measure of Nasal Air Emission Using Nasal Accelerometry", Journal of Speech, Language, and Hearing Research, 59(5), pp. 1018-1024, 2016. [PMC5345551]

42] Cler M.J.†, Nieto-Castanon A., Guenther F.H., Fager S.K., **Stepp C.E.** "Surface electromyographic control of a novel phonemic interface for speech synthesis", Augmentative and Alternative Communication, 32(2), pp. 120-130, 2016. [PMC4957551]

41] Heller Murray E.S.†, Hands G.L.†, Calabrese C.†, **Stepp C.E.** "Effects of adventitious acute vocal trauma: Relative fundamental frequency and listener perception", Journal of Voice, 30(2), pp. 177-185, 2016. [PMC4662926]

40] Hands G.L.†, **Stepp C.E.** "Effect of age on human-computer-interface control via neck electromyography", Interacting with Computers, 28(1), pp. 47 – 54, 2016. [PMC4764133]

39] Lien Y.S.†, Calabrese C.†, Michener C.M.†, Heller Murray E.S.†, Van Stan J., Mehta D.D., Hillman R.E., Noordzij J.P., **Stepp C.E.** "Voice relative fundamental frequency via neck-skin acceleration in individuals with voice disorders", Journal of Speech, Language, and Hearing Research, 58(5), pp. 1482-1487, 2015. [PMC4686308]

38] Anand S.†, **Stepp C.E.** "Listener perception of monopitch, naturalness and intelligibility for speakers with Parkinson's disease", Journal of Speech, Language, and Hearing Research, 58(4), pp. 1134-1144, 2015.

37] Cler M.J.†, **Stepp C.E.** "Discrete vs. Continuous Mapping of Facial Electromyography for Human-Machine-Interface Control: Performance and Training Effects", IEEE Transactions on Neural Systems and Rehabilitation Engineering, 23(4), pp. 572-580, 2015. [PMC4496287]

36] Lien Y.S.†, Michener C.M.†, Eadie T.L., **Stepp C.E.** "Individual monitoring of vocal effort with relative fundamental frequency: Relationships with aerodynamics and listener perception", Journal of Speech, Language, and Hearing Research, 58(3), pp. 566-575, 2015. [PMC4490061]

35] Britton D., Benditt J., Merati A., Miller R., **Stepp C.E.,** Boitano L., Hu A., Ciol M., Yorkston K. "Associations between laryngeal and cough dysfunction in motor neuron disease with bulbar involvement", Dysphagia, 29(6), pp. 637-646, 2014.

34] Malloy J.R.†, Valentin J.C.†, Hands G.L.†, Stevens C.A.†, Langmore S.E., Noordzij J.P., **Stepp C.E.** "Visuomotor control of neck surface electromyography in Parkinson's disease", Neurorehabilitation, 35(4), pp. 795-803, 2014. [PMC4368899]

33] Perrachione T.K., **Stepp C.E.,** Hillman R.E., Wong P.C.M. "Talker identification across source mechanisms: Experiments with laryngeal and electrolarynx speech", Journal of Speech, Language, and Hearing Research, 57(5), pp. 1651-1665, 2014.

32] Varghese L.A.†, Mendoza J.O.†, Braden M.N., **Stepp C.E.** " Effects of spectral content on Horii Oral-Nasal Coupling scores in children", Journal of the Acoustical Society of America, 136(3), pp. 1295-1306, 2014. [PMC4165226]

31] Lien Y.S.†, Gattuccio C.I.†, **Stepp C.E.**. "Effects of Phonetic Context on Relative Fundamental Frequency", Journal of Speech, Language, and Hearing Research, 57(4), pp. 1259-1267, 2014. [PMC4119098]

30] Hands G.L.†, Larson E.D., **Stepp C.E.** "Effects of augmentative visual training on audio-motor mapping", Human Movement Science, 35, pp. 145-155, 2014. [PMC4061242]

29] Lien Y.S.†, **Stepp C.E.** "Comparison of voice relative fundamental frequency estimates derived from an accelerometer signal and low-pass filtered and unprocessed microphone signals", Journal of the Acoustical Society of America, 135(5), pp. 2977-2985, 2014. [PMC4032403]

28] Thorp E.B.†, Larson E., **Stepp C.E.** "Combined Auditory and Vibrotactile Feedback for Human-Machine-Interface Control", IEEE Transactions on Neural Systems and Rehabilitation Engineering, 22(1), pp. 62-68, 2014. [PMC3939061]

27] Bowen L.K.†., Hands G.L.†, Pradhan S., **Stepp C.E.** "Fundamental Frequency Variability in Parkinson's Disease", Journal of Medical Speech-Language Pathology, 21(3), 2013. [NIHMSID 439995]

26] Thorp E.B.†, Virnik B.†, **Stepp C.E.** "Comparison of Nasal Acceleration and Nasalance Across Vowels", Journal of Speech, Language, and Hearing Research, 56(5), pp. 1476-1484, 2013.

25] Rombokas E.†, **Stepp C.E.**, Chang, C.†, Malhotra M., Matsuoka Y. "Vibrotactile Sensory Substitution for Electromyographic Control of Object Manipulation", IEEE Transactions on Biomedical Engineering, 60(8), pp. 2226 – 2232, 2013.

24] Larson E.D., Terry H.†, Canevari M.†, **Stepp C.E.** "Categorical vowel perception enhances the effectiveness and generalization of auditory feedback in human-machine-interfaces", PLoS ONE, 8(3): e59860, 2013. [PMC3602293]

23] Eadie T.L., **Stepp C.E.** "An Acoustic Correlate of Vocal Effort in Spasmodic Dysphonia", Annals of Otology, Rhinology, & Laryngology, 122(3), pp. 169-176, 2013.

22] **Stepp C.E.** "Relative fundamental frequency during vocal onset and offset in older speakers with and without Parkinson's Disease", Journal of the Acoustical Society of America, 133(3), pp. 1637-1643, 2013. [PMC3606308]

21] **Stepp C.E.**, Sawin D.E., Eadie T.L. "The Relationship between Perception of Vocal Effort and Relative Fundamental Frequency during Voicing Offset and Onset", Journal of Speech, Language, and Hearing Research, 55(6), pp. 1887-1896, 2012.

20] **Stepp C.E.** "Surface electromyography for speech and swallowing systems: measurement, analysis, and interpretation", Journal of Speech, Language, and Hearing Research, 55(4), pp. 1232-1246, 2012.

19] **Stepp C.E.,** An Q., Matsuoka, Y. "Repeated Training with Augmentative Vibrotactile Feedback Increases Object Manipulation Performance", PLoS ONE, 7(2), e32743, 2012. [PMC3287982]

18] **Stepp C.E.**, Matsuoka.Y. "Vibrotactile Sensory Substitution for Object Manipulation: Amplitude versus Frequency Modulation", IEEE Transactions on Neural Systems and Rehabilitation Engineering, 20(1), pp. 31-37, 2012. [PMC3395369]

17] Britton D., Yorkston K.M., Eadie T., **Stepp C.E.**, Ciol M.A., Baylor C., Merati A.L. "Endoscopic assessment of vocal fold movements during cough", Annals of Otology, Rhinology, & Laryngology, 121(1), pp. 21-27, 2012.

16] **Stepp C.E.**, Oyunerdene N.†, Matsuoka.Y. "Kinesthetic Motor Imagery Modulates Intermuscular Coherence", IEEE Transactions on Neural Systems and Rehabilitation Engineering, 19(6), pp. 638-643, 2011. [PMC3401579]

15] **Stepp C.E.**, Matsuoka.Y. "Object Manipulation Improvements with Single Session Training Outweigh the Differences among Stimulation Sites during Vibrotactile Feedback", IEEE Transactions on Neural Systems and Rehabilitation Engineering, 19(6), pp. 677-685, 2011. [PMC3401581]

14] **Stepp C.E.**, Heaton J.T., Stadelman-Cohen T.K., Braden M.N., Jetté M.E., Hillman R.E. "Characteristics of phonatory function in singers and non-singers with vocal fold nodules", Journal of Voice, 25(6), pp. 714-724, 2011. [PMC3117117]

13] **Stepp C.E.,** Merchant, G.R., Heaton J.T., Hillman, R.E. "Effects of Voice Therapy on Relative Fundamental Frequency during Voicing Offset and Onset in Patients with Vocal Hyperfunction", Journal of Speech, Language, and Hearing Research, 54(5), pp. 1260-1266, 2011. [PMC3394393]

12] **Stepp C.E.,** Hillman, R.E., Heaton J.T. "Modulation of Neck Intermuscular Beta Coherence during Voice and Speech", Journal of Speech, Language, and Hearing Research, 54(3), pp. 836-844, 2011.

11] **Stepp C.E.**, Heaton J.T., Braden M.N., Jetté M.E., Stadelman-Cohen, T.K., Hillman R.E. "Comparison of neck tension palpation rating systems with surface electromyographic and acoustic measures in vocal hyperfunction", Journal of Voice, 25(1), pp. 67-75, 2011. [PMC2913165]

10] **Stepp C.E.**, Hillman R.E., Heaton J.T. "The Impact of Vocal Hyperfunction on Relative Fundamental Frequency during Voicing Offset and Onset", Journal of Speech, Language, and Hearing Research, 53(5), pp. 1220-1226, 2010.

9] **Stepp C.E.,** Heaton J.T., Jetté M.E., Burns J.A., Hillman, R.E. "Neck surface electromyography as a measure of vocal hyperfunction before and after injection laryngoplasty", Annals of Otology, Rhinology, & Laryngology, 119(9), pp. 594-601, 2010. [PMC3392645]

8] **Stepp C.E.**, Hillman R.E., Heaton J.T. "Use of Neck Strap Muscle Intermuscular Coherence as a Measure of Vocal Hyperfunction", IEEE Transactions on Neural Systems and Rehabilitation Engineering, 18(30), pp. 329-335, 2010. [PMC3401580]

7] **Stepp C.E.**, Hillman R.E., Heaton J.T. "A virtual trajectory model predicts differences in vocal fold kinematics in individuals with vocal hyperfunction", Journal of the Acoustical Society of America, 127(5), pp. 3166-3176, 2010. [PMC2882670]

6] Kubert H.L., **Stepp C.E.**, Zeitels S.M., Gooey J.E., Walsh M.J., Prakash S.R. Hillman R.E., Heaton J.T. "Electromyographic control of a hands-free electrolarynx using neck strap muscles", Journal of Communication Disorders, 42(3), pp. 211-225, 2009.

5] **Stepp C.E.**, Heaton J.T., Rolland R.G., Hillman R.E. "Neck and face surface electromyography for prosthetic voice control after total laryngectomy", IEEE Transactions on Neural Systems and Rehabilitation Engineering, 17(2), pp. 146-155, 2009. [PMC387553]

4] **Stepp C.E.**, Heaton J.T., Hillman R.E. "Post-laryngectomy speech respiration patterns", Annals of Otology, Rhinology & Laryngology, 117(8), pp. 557-563, 2008. [PMC3395327]

3] Goldstein E.A., Heaton J.T., **Stepp C.E.**, Hillman R.E. "Training effects on speech production using a hands-free electromyographically-controlled electrolarynx", Journal of Speech, Language, and Hearing Research, 50(2), pp 335-351, 2007.

2] **Stepp C.E.**, Voss S.E. "Acoustics of the human middle-ear air space", Journal of the Acoustical Society of America, 118(2), pp. 861-871, 2005.

1] Subramaniam K., **Stepp C.**, Pignatello J.J., Smets B., Grasso, D. "Enhancement of Polynuclear Aromatic Hydrocarbon Desorption by Complexing Agents in Weathered Soil", Environmental Engineering Science, 21(4), pp. 515-523, 2004.

Refereed Conference Papers (†student / post-doctoral mentee, *presenting author):

[19] *Cler M.J.†, **Stepp C.E.** "Development and Theoretical Evaluation of Optimized Phonemic Interfaces", Proceedings of the 19th International ACM SIGACCESS Conference on Computers and Accessibility, 29 October – November 1, 2017. [26.2% acceptance rate]

18] *Cler M.J.†, Voysey, G., **Stepp C.E.** "Video game speech rehabilitation for velopharyngeal dysfunction: Feasibility and pilot testing", Proceedings of the 7th International IEEE EMBS Conference on Neural Engineering, 22 – 24 April, 2015, pp. 812-815. [poster presentation]

17] *Cler M.J.†, Nieto-Castanon A., Guenther F.H., **Stepp C.E.** "Surface electromyographic control of speech synthesis", Proceedings of the 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 27 – 30 August, 2014, pp. 5848-5851. [poster presentation]

16] *Smith D.S.†, Varghese L.A.†, **Stepp C.E.,** Guenther F.H. "Comparison of Steady-State Visual and Somatosensory Evoked Potentials for Brain-Computer Interface Control", Proceedings of the 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 27 – 30 August, 2014, pp. 1234-1237. [poster presentation]

15] *Cler M.J.†, Michener C.M.†, **Stepp C.E.** "Discrete vs. continuous surface electromyographic interface control", Proceedings of the 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 27 – 30 August, 2014, pp. 4374-4377. [podium presentation]

14] Favrot, S., Michener C.M.[†], **Stepp C.E.** “Discrete and continuous auditory feedback based on pitch and spatial lateralization for human-machine-interface control”, Proceedings of Meetings on Acoustics, 21(1), p. 050001 (2014).

13] *Lien Y.S.[†], **Stepp C.E.** “Automated Estimation of Relative Fundamental Frequency”, Proceedings of the 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 3 – 7 July, 2013, pp. 2136-2139. [poster presentation]

12] Hands G.L.[†], Larson E., ***Stepp C.E.** “The role of augmentative visual training in auditory human-machine-interface performance”, Proceedings of the 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 3 – 7 July, 2013, pp. 2804-2807. [podium presentation]

11] *Thorp E.[†], Virnik B.[†], **Stepp C.E.** ”Normalization Strategies for Nasal Acceleration to Assess Velopharyngeal Function”, Proceedings of the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 28 August 28 – 1 September, 2012, pp. 6459-6462. [podium presentation]

10] Larson E., Terry H.[†], ***Stepp C.E.** ”Audio-visual feedback for electromyographic control of vowel synthesis”, Proceedings of the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 28 August 28 – 1 September, 2012, pp. 3600-3603. [poster presentation]

9] *An Q.[†], Matsuoka Y., Asama H., **Stepp C.E.** ”Effect of Vibrotactile Feedback on Robotic Object Manipulation”, IEEE International Conference on Biomedical Robotics and Biomechatronics, June 24-28, 2012, pp. 508-513. [poster presentation]

8] Tejeiro C.[†]., **Stepp C.E.,** *Malhotra M., Rombokas E., Matsuoka Y. ”Comparison of Remote Pressure and Vibrotactile Feedback for Prosthetic Hand Control”, IEEE International Conference on Biomedical Robotics and Biomechatronics, June 24-28, 2012, pp. 521-525. [poster presentation]

7] **Stepp C.E.**, Chang C.[†], Malhotra M., Matsuoka Y. ”Vibrotactile feedback aids EMG control of object manipulation”, Proceedings of the 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 30 August – 3 September, 2011, pp. 1061-1064. [poster presentation]

6] *An Q.[†], Matsuoka Y., **Stepp C.E.** “Multi-day Training with Vibrotactile Feedback for Virtual Object Manipulation”, Proceedings of the 12th IEEE International Conference on Rehabilitation Robotics, June 29 – July 1, 2011, pp. 1-5. [podium presentation]

5] *An Q.[†], Asama H., **Stepp C.E.,** Matsuoka Y. “Uncontrolled Manifold Analysis of Standing-up Motion for Development of an Assistance System”, Proceedings of the 12th IEEE International Conference on Rehabilitation Robotics, June 29 – July 1, 2011, pp. 1-5. [poster presentation]

4] ***Stepp C.E.,** Britton D., Chang, C.[†], Merati A., Matsuoka Y. “Feasibility of game-based electromyographic biofeedback for dysphagia rehabilitation”, Proceedings of the 5th International IEEE EMBS Conference on Neural Engineering of the IEEE Engineering in Medicine and Biology Society, April 27 - May 1, 2011, pp. 233-236. [poster presentation] ****Winner of the NSF Neural Engineering Travel Award**

3] ***Stepp C.E.**, Dellon B.T., Matsuoka, Y. “Contextual effects on robotic experiments of sensory feedback for object manipulation", Proceedings of the 3rd IEEE RAS & EMBS International conference on Biomedical Robotics and Biomechatronics, 26-29 September 2010, pp. 58-63. [podium presentation]

2] ***Stepp C.E.,** Matsuoka, Y. “Relative to direct haptic feedback, remote vibrotactile feedback improves but slows object manipulation", Proceedings of the 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 31 August – 4 September 2010, pp. 2089-2092. [podium presentation]

1] *Huynh K.[†], ***Stepp C.E.**, White L.W.[†], Colgate J.E., Matsuoka Y. “Finding a Feature on a 3D Object through Single-Digit Haptic Exploration”, IEEE Proceedings of the 2010 Haptics Symposium, 25-26 March 2010, pp. 83-89. [poster presentation]

Invited Book Chapters/Reviews:

2] Vojtech J.M.[†], **Stepp C.E.** “Speech Naturalness”, The SAGE Encyclopedia of Human Communication Sciences and Disorders, Martin J. Ball (Editor), Jack S. Damico (editor). In Press.

1] **Stepp C.E.** Book Review on: Introduction to Neural Engineering for Motor Rehabilitation, Dario Farina (Editor), Winnie Jensen (Editor), Metin Akay (Editor). Wiley-IEEE Press (2013). ISBN: 978-0-470-91673-5, 49, pp. 30-31, 2014.

Conference Abstracts (†student / post-doctoral mentee, *presenting author):

66] *Lester-Smith R.A.†, Daliri A., Abur D.†, Letcher S.†, Lupiani A.A.†, Guenther F.H, **Stepp C.E.** "The Importance of Auditory Feedback in Speech and Voice Motor Control", American Speech and Hearing Association (ASHA) Convention, Los Angeles, CA, November 9 – 11, 2017, *submitted*.

65] *Smith D.J.†, Salazar-Gomez A., **Stepp C.E.**, Guenther F.H, "Somantosensory-based Compensation to Mechanical Perturbations of the Larynx during Speech", Society for Neuroscience, Washington, D.C., November 11-15, 2017.

64] *Cler M.J.†, Lee J.C., Mittelman T.†, **Stepp C.E.**, & Bohland J.W. "Multivariate Analyses for Large Articulography Datasets of Speech and Induced Speech Errors", 7th International Conference on Speech Motor Control, Groningen, the Netherlands, July 5 – 8, 2017. [podium presentation]

63] ***Stepp C.E.**, Heller Murray E.S.†, Abur D.†, Lester-Smith R.A.†, Daliri A., Noordzij J.P., Lupiani A.A.† "Auditory-motor impairment as an underlying basis of hyperfunctional voice disorders", 7th International Conference on Speech Motor Control, Groningen, the Netherlands, July 5 – 8, 2017. [poster presentation]

62] *Abur D.A.†, Lupiani, A.A.†, Hickox A.E., Shinn-Cunningham B., **Stepp C.E.** "Loudness perception of pure tones in Parkinson's disease", 173rd Meeting of the Acoustical Society of America, Boston, MA, June 25 – 19, 2017. [poster presentation]

61] MacPherson M.K., *Abur, D.A.†, Shembel A.†, **Stepp C.E.** "Autonomic and Acoustic Measures during Speech as a Function of Cognitive Load in Healthy Older Adults", 46th Annual Voice Foundation Symposium, Philadelphia, PA, May 31 – June 4, 2017. [poster presentation] ****Second place, Best Poster Award**

60] *McKenna V.S.†, Llico A.F.†, Mehta D.D., **Stepp C.E.** "Neck-Surface Acceleration as an Estimate of Subglottal Pressure during Modulated Vocal Effort and Intensity in Healthy Speakers", 5th Occupational Voice Symposium, London, UK, March 28 – 29, 2017. [podium presentation].

59] *Hammer M., *Patel S., ***Stepp C.E.**, *Larson C. "Auditory and Somatosensory Mechanisms Associated with Voice Disorders and Voice Treatment in Parkinson's Disease", American Speech and Hearing Association (ASHA) Convention, Philadelphia, PA, November 17-19, 2016 [podium presentation].

58] *Heller Murray E.S.†, Girouard K.†, Cler M.J.†, **Stepp C.E.** "Development of an electronic voice therapy documentation system: Clinical research and teaching implications", American Speech and Hearing Association (ASHA) Convention, Philadelphia, PA, November 17-19, 2016 [podium presentation].

57] *McKenna V.S.†, Llico A.F.†, Mehta D.D., **Stepp C.E.** "Neck-Surface Acceleration as an Estimate of Subglottal Pressure during Modulated Vocal Effort in Healthy Speakers", American Speech and Hearing Association (ASHA) Convention, Philadelphia, PA, November 17-19, 2016 [podium presentation].

56] *Cler M.J.†, Lien Y.S.†, Braden M.N., Mittelman T.†, Byron K.†, **Stepp C.E.** "Objective Measure of Nasal Air Emission Using Nasal Accelerometry", American Speech and Hearing Association (ASHA) Convention, Philadelphia, PA, November 17-19, 2016 [poster presentation].

55] *Hillman R.E., Mehta D.D., **Stepp C.E.**, Van Stan J., Zanartu M. "Objective assessment of vocal hyperfunction", 171st Meeting of the Acoustical Society of America, Salt Lake City, UT, May 23 – 27, 2016. [podium presentation] (Invited)

54] McKenna V.S.†, Heller Murray E.S.†, Lien Y. S.†, ***Stepp C.E.** "Acoustic and Kinematic Estimates of Laryngeal Stiffness", 171st Meeting of the Acoustical Society of America, Salt Lake City, UT, May 23 – 27, 2016. [podium presentation] (Invited)

53] MacPherson M.K., ***Stepp C.E.** "Relationships between Acoustic Measures of Voice and Physiologic Measures of Autonomic Arousal during a Cognitively Demanding Speech Task", 45th Annual Voice Foundation Symposium, Philadelphia, PA, June 1-5, 2016.

52] *McKenna V.S.†, Heller Murray E.S.†, Lien Y. S.†, **Stepp C.E.** “The Relationship between Relative Fundamental Frequency and a Kinematic Estimate of Laryngeal Stiffness in Healthy Adults”, 45th Annual Voice Foundation Symposium, Philadelphia, PA, June 1-5, 2016. ****First place, Best Poster Award**

51] Heller Murray E.S.†, Lien Y.S.†, Van Stan J., Mehta D.D., Hillman R.E., Noordzij J.P., ***Stepp C.E.** “Relative Fundamental Frequency Distinguishes Between Phonotraumatic and Non-Phonotraumatic Vocal Hyperfunction”, 10th International Conference on Voice Physiology and Biomechanics, Vina del Mar, Chile, March 14 - 17, 2016. [podium presentation]

50] *Heller Murray E.S.†, Michener C.M.†, Enflo L.†, Cler M.J.†, **Stepp C.E.** “The Impact of Glottal Closure on Speech Breathing”, 10th International Conference on Voice Physiology and Biomechanics, Vina del Mar, Chile, March 14 - 17, 2016. [podium presentation]

49] *Cler M.J.†, Nieto-Castanon A., Guenther F.H., Fager S., **Stepp C.E.** “2D Control of Speech Synthesis via Surface Electromyography”, Conference on Motor Speech, Newport Beach, CA, March 3-6, 2016. [poster presentation]

48] Cler M.J.†, ***Stepp C.E.** “Videogame Rehabilitation of Velopharyngeal Mislearning”, Conference on Motor Speech, Newport Beach, CA, March 3-6, 2016. [podium presentation]

47] *Cler M.J.†, Lee J.C., Mittelman T.†, **Stepp C.E.**, & Bohland J.W. “Electromagnetic Articulographic Analysis of Speech Sound Sequencing Errors Induced by Delayed Auditory Feedback”, Conference on Motor Speech, Newport Beach, CA, March 3-6, 2016. [poster presentation]

46] Abur D.†, Daliri A., Guenther F.H., ***Stepp C.E.** “Sensorimotor adaptation to gradual perturbations in the fundamental frequency of auditory feedback in Parkinson’s disease”, Conference on Motor Speech, Newport Beach, CA, March 3-6, 2016. [podium presentation]

45] *Kaneoka A., Pisegna J.M., Krisciunas G.P., Nito, T., LaValley M.P., **Stepp C.E.**, Langmore S.E. “Laryngeal sensory testing: A pilot study investigating the intensity of the touch and responsive reflexes”, Dysphagia Research Society Annual Meeting, Tucson, AZ, February 25 – 27, 2016. [poster presentation]

44] Cler M.J.†, ***Stepp C.E.** “Videogame Rehabilitation of Velopharyngeal Dysfunction”, American Speech and Hearing Association (ASHA) Convention, November 12-14, 2015, Denver, CO. [podium presentation]

43] Lien Y.S.†, Calabrese C.†, Michener C.M.†, Heller Murray E., Van Stan J., Mehta D.D., Hillman R.E., Noordzij J.P., ***Stepp C.E.** “Automated algorithms for voice relative fundamental frequency: Validation and applications in assessing voice disorders”, American Speech and Hearing Association (ASHA) Convention, November 12-14, 2015, Denver, CO. [podium presentation]

42] *Brumberg J.S., ***Stepp C.E.,** *Lalor E., *Lee A.K.C.. “Biosignal acquisition for speech production and perception: electromyography, electroencephalography and magnetoencephalography (EMG, EEG and MEG)”, Interspeech 2015, Dresden, Germany, September 6 – 10, 2015. [podium presentation]

41] Lien Y.S. †, Calabrese C.†, Michener C.M.†, Murray E.H.†, Van Stan J., Mehta D.D., Hillman R.E., Noordzij J.P., ***Stepp C.E.** “Automated algorithms for estimation of Relative Fundamental Frequency in individuals with and without voice disorders”, 11th International Advances in Quantitative Laryngology, Voice and Speech Research (AQL) Conference, London, 8-10 April, 2015. [podium presentation]

40] MacPherson M.K., Michener C.M. †, ***Stepp C.E.** “Effects of a Cognitively Demanding Task on Spectral-Cepstral Acoustic Features of Voice in Healthy Young Adults”, 44th Annual Symposium: Care of the Professional Voice, Voice Foundation, May 26-31, 2015, Philadelphia, PA. [poster presentation] ****Second place, Best Poster Award**

39] *Heller Murray E.S. †, Hands G.L. †, Calabrese C.R. †, **Stepp C.E.** “Effects of adventitious vocal trauma: Relative fundamental frequency and listener perception”, 44th Annual Symposium: Care of the Professional Voice, Voice Foundation, May 26-31, 2015, Philadelphia, PA. [podium presentation]

38] Lien Y.S.†, Calabrese C.†, Michener C.M.†, Van Stan J., Mehta D.D., Hillman R.E., ***Stepp C.E.** “Relative fundamental frequency estimation via neck skin acceleration in healthy and disordered voices”, American Speech and Hearing Association (ASHA) Convention, November 20-22, 2014, Orlando, FL. [podium presentation]

37] *Anand, S.†, Heller Murray E.S. †, **Stepp C.E.** "Vocal Loudness Discrimination Deficits in Individuals with Parkinson's disease", American Speech and Hearing Association (ASHA) Convention, November 20-22, 2014, Orlando, FL. [podium presentation]

36] *Michener C.M.†, Lien Y.S.†, **Stepp C.E.** "Individual Monitoring of Vocal Effort with Relative Fundamental Frequency", American Speech and Hearing Association (ASHA) Convention, November 20-22, 2014, Orlando, FL. [podium presentation]

35] *Heller Murray E.S.†, Mendoza J.O.†, **Stepp C.E.** "Effects of normalized nasal acceleration feedback on control and generalization of nasalance", American Speech and Hearing Association (ASHA) Convention, November 20-22, 2014, Orlando, FL. [podium presentation]

34] *Cler M.J.†, Michener C.M.†, **Stepp C.E.** "Discrete vs. continuous mapping of facial electromyography for learning and generalization of human-machine-interface control", Neural Interfaces Conference, Dallas, TX, June 23-25, 2014. [poster presentation]

33] *Varghese L.A.†, Mendoza J.O.†, Braden M.N., **Stepp C.E.** "Accelerometric correlates of nasalized speech in children", 167th Meeting of the Acoustical Society of America, Providence, RI, May 5 – 9, 2014. [poster presentation]

32] Favrot S.E., *Michener C.M.†, **Stepp C.E.** "Discrete and continuous auditory feedback based on pitch and spatial lateralization for human-machine-interface control", 167th Meeting of the Acoustical Society of America, Providence, RI, May 5 – 9, 2014. [poster presentation]

31] *Lien Y.S.†, Michener C.M.†, **Stepp C.E.** "Validation of relative fundamental frequency using an aerodynamic estimate of vocal effort", 167th Meeting of the Acoustical Society of America, Providence, RI, May 5 – 9, 2014. [poster presentation]

30] Malloy J.R.†, Valentin J.C.†, Hands G.L.†, Stevens C.A.†, Langmore S. E., Noordzij J.P., ***Stepp C.E.** "Neck surface electromyography in Parkinson's disease during swallowing and non-swallowing tasks", 134nd Annual Meeting of the American Laryngological Association (ALA), Las Vegas, NV, May 14-15, 2014. [poster presentation]

29] *Heller Murray E.S. †, **Stepp C.E.** "The role of feedback on discrimination of vocal sound pressure levels", Conference on Motor Speech, Sarasota, FL, February 27-March 2, 2014. [poster presentation]

28] *Malloy J.R.†, Michener C.M.†, **Stepp C.E.** "Information transfer rate of an AAC system utilizing facial surface electromyography", Conference on Motor Speech, Sarasota, FL, February 27-March 2, 2014. [poster presentation]

27] *Varghese L.A.†, Michalka S.W., Yazdanbakhsh A., Somers D., **Stepp C.E.,** Guenther F.H., Shinn-Cunnhingham B.G. "Decoding the Locus of Attention to Visual, Auditory, and Audiovisual Stimuli from Single-Trial EEG Data", MidWinter Meeting for the Association for Research in Otolaryngology, San Diego, CA, February 22-26, 2014. [poster presentation]

26] ***Stepp C.E.,** Vega-Barachowitz C., Ambrosi D., Perry P., Kiran S., "The Next Frontier in Rehabilitation: Connected Care Using tablets, cloud-computing and other technologies", American Speech and Hearing Association (ASHA) Convention, Chicago, IL, November 14-16, 2013. [podium presentation]

25] *Braden M.N., Varghese L.A.†, ***Stepp C.E.** "Application of normalized nasal acceleration to children with and without cleft palate", American Speech and Hearing Association (ASHA) Convention, Chicago, IL, November 14-16, 2013. [podium presentation]

24] *Lien Y.S.† and **Stepp C.E.** "Comparison of relative fundamental frequency estimates using neck skin vibration and acoustics", American Speech and Hearing Association (ASHA) Convention, Chicago, IL, November 14-16, 2013. [podium presentation] ****Winner of ASHA's Student Research Travel Award for submitting the top student paper in "Voice, Resonance, and Alaryngeal Speech."**

23] ***Stepp C.E.** and *Brumberg J. "What you need to know: Surface electromyography & Electroencephalography in Speech & Hearing", American Speech and Hearing Association (ASHA) Convention, Chicago, IL, November 14-16, 2013. [podium presentation]

22] *Lien Y.S.†, Gattuccio, C.I.†, **Stepp C.E.** "The Effect of Phonetic Context on Relative Fundamental Frequency", 10th International Advances in Quantitative Laryngology, Voice and Speech Research (AQL)

Conference, Cincinnati, OH, 3-4 June 2013. [podium presentation] ****Winner of the AQL Best Paper Award**

21] *Britton D., Merati A., Benditt J.O., Stepp C., Hu C., Miller R., Yorkston K. "Associations between laryngeal and cough dysfunction in motor neuron disease (MND)", Dysphagia Research Society Annual Meeting, Seattle, WA, March 13-16, 2013. [poster presentation]

20] ***Stepp C.E.** "Voluntary Anterior Neck Control in Older versus Younger Adults", American Speech and Hearing Association (ASHA) Convention, Atlanta, GA, November 15-17, 2012 [poster presentation].

19] ***Stepp C.E.**, *Patel R., *Brumberg J. "Games for assessment and rehabilitation of speech and language impairments", American Speech and Hearing Association (ASHA) Convention, Atlanta, GA, November 15-17, 2012. [podium presentation]

18] *Britton D., Merati A., Benditt J.O., **Stepp C.**, Yorkston K. "Associations between vocal fold movements and airflow during cough in neurological disease: Preliminary analyses", The Fall Voice Conference, New York, NY, October 4-6, 2012. [podium presentation]

17] Bowen L.†, Pradhan S., ***Stepp C.E.** "Fundamental Frequency Variability in Parkinson's Disease", 41st Annual Symposium: Care of the Professional Voice, Philadelphia, PA, May 30 – June 3, 2012. [poster presentation]

16] *Britton D., Merati A., Benditt J.O., **Stepp C.**, Max L., Yorkston K. "Associations between vocal fold movements and peak expiratory cough flow in healthy middle-aged adults: Preliminary analyses", Dysphagia Research Society Annual Meeting, Toronto, Ontario, March 8 – 10, 2012. [poster presentation]

15] ***Stepp C.E.** and Pradhan S. "Relationship between Relative Fundamental Frequency and Parkinson's Disease", Conference on Motor Speech, Santa Rosa, CA, February 29 – March 4, 2012. [poster presentation]

14] ***Stepp C.E.** and Eadie T. "Relative Fundamental Frequency as an Acoustic Correlate of Vocal Effort in Spasmodic Dysphonia", 161st Meeting of the Acoustical Society of America, Seattle, WA, 23-27 May 2011. [poster presentation].

13] ***Stepp C.E.** and Matsuoka Y. "Novel Augmentative Sensory Feedback for Robotic Rehabilitation", Future Trends in Rehabilitation Robotics Workshop, BIOROB, Tokyo, September 26, 2010. [podium presentation]

12] ***Stepp C.E.** and Matsuoka Y. "Visual and Haptic Feedback for Users of Prosthetic Hands", Neural Interfaces Conference, Long Beach, CA, June 21-23, 2010. [poster presentation] ****Winner of the Neural Interfaces Conference Student Excellence in Neural Interfacing Travel Award**

11] ***Stepp C.E.**, Hillman R.E., Heaton J.T. "Neck intermuscular coherence distinguishes normal from disordered voice production", Conference on Motor Speech, Savannah, GA, March 4 - 7, 2010. [poster presentation]

10] *Britton D., Baylor C., Eadie T., Merati A.L., **Stepp C.E.**, Yorkston K.M. "Endoscopic assessment of vocal fold movements during cough", Conference on Motor Speech, Savannah, GA, March 4 - 7, 2010. [poster presentation]

9] *Merchant G.R.†, **Stepp C.E.,** Heaton J.T., Hillman R.E. "Relative Fundamental Frequency in Patients with Vocal Hyperfunction", MidWinter Meeting for the Association for Research in Otolaryngology, Anaheim, CA, February 6-10, 2010. [poster presentation]

8] *Perrachione T.K., **Stepp C.E.**, Hillman R.E., Wong P.C.M. "The role of source and filter characteristics in human talker identification: Experiments with laryngeal and electrolarynx speech", *158th Annual Meeting of the Acoustical Society of America*, San Antonio, TX, October 26 – 30, 2009. [poster presentation]

7] ***Stepp C.E.**, Hillman R.E., Heaton J.T. "Bilateral Intermuscular Beta Coherence is Reduced in Individuals with Vocal Hyperfunction", ACRM-ASNR Joint Educational Conference, *Building the Evidence Base for Rehabilitation Interventions: From Research to Clinical Care*, Denver, CO, October 7 - 11, 2009. [poster presentation] ****Winner of the ASNR Presidential Award**

6] ***Stepp C.E.,** Heaton J.T., Stadelman-Cohen T., Braden M.N., Jette M., Hillman R.E. "Vocal Fold Kinematics in Individuals with Vocal Hyperfunction", Society for Neuroscience, Washington, D.C., November 15-19, 2008. [poster presentation]

5] *__Stepp C.E.__, Heaton J.T., Hillman R.E. "Use of neck and face surface EMG for controlling a prosthetic voice after total laryngectomy", Conference on Motor Speech, Monterey, CA, March 6-9, 2008. [poster presentation]

4] *__Stepp C.E.__, Heaton J.T., Hillman R.E. "A Longitudinal Study of Post-Laryngectomy Speech and Swallowing Respiration Patterns", American Speech and Hearing Association (ASHA) Convention, Boston, MA, November 15-17, 2007. [poster presentation]

3] *Kubert H., __Stepp C.E.__, Zeitels S.M., Gooey J., Walsh M., Prakash S.R., Hillman R.E., Heaton J.T. "Electromyographic Control of a Hands-Free Electrolarynx Using Neck Strap Muscles", American Speech and Hearing Association (ASHA) Convention, Boston, MA, November 15-17, 2007. [podium presentation]

2] *__Stepp C.E.__, Voss S.E. "Acoustics of the middle-ear air space in human ears", American Auditory Society Annual Meeting, Scottsdale, AZ, 6-9 March 2004. [podium presentation]

1] *__Stepp C.__, Subramaniam K., Smets B., Pignatello J.J., Grasso, D. "Chelating Agent Enhanced Desorption of PAH Compounds", 76th Colloid and Surface Science Symposium, American Chemical Society, University of Michigan, Ann Arbor, MI, 23-26 June 2002. [podium presentation]

Manuscripts In Review († denotes student / post-doctoral mentee):

Abur D.A.†, Lester R.A.†, Daliri A., Guenther F.H., **Stepp C.E.** "Pitch sensorimotor adaptation in Parkinson's disease", Clinical Neurophysiology, *submitted 06/27/2017.*

McKenna V.S.†, Llico A. †, Mehta D.D., Perkell J.S., **Stepp C.E.** "Magnitude of neck-surface vibration as an estimate of subglottal pressure during modulations of vocal effort and intensity in healthy speakers", Journal of Speech, Language, and Hearing Research, *submitted 05/16/2017.*

Heller Murray E.S.†, Michener C.M.†, Enflo L.†, Cler G.J.†, **Stepp C.E.** "The impact of glottal configuration on speech breathing", Journal of Voice, *submitted 03/15/2017.*

Lien Y.S.†, Heller Murray E.S.†, Calabrese C.†, Michener C.M.†, Van Stan J., Mehta D.D., Hillman R.E., Noordzij J.P., **Stepp C.E.** "Validation of an algorithm for semi-automated estimation of relative fundamental frequency", Annals of Otology, Laryngology, and Rhinology, *submitted 2/17/2017.*

Manuscripts In Preparation († denotes student / post-doctoral mentee):

Lester R.A.†, Daliri A., Enos, N.†, Abur D.A.†, Letcher, S.†, Lupiani A.†, Guenther F.H., **Stepp C.E.** "The Relation of Articulatory and Vocal Auditory-Motor Control in Typical Speakers: are all 'followers' the same?", Journal of Speech, Language, and Hearing Research, *target submission date of 09/01/2017.*

Park, Y.P.†, **Stepp C.E.** "Multi-day reliability of acoustic and aerodynamic measures of voice", Journal of Speech, Language, and Hearing Research, *target submission date of 09/01/2017.*

Park, Y.P.†, **Stepp C.E.** "Effects of vowel, loudness, and pitch on relative fundamental frequency", Journal of Voice, *target submission date of 08/15/2017.*

Vojtech J.M.†, Cler G.J.†, Noordzij, J.P., Jr.†, **Stepp C.E.** "Prediction of optimal facial electromyographic sensor configuration for human-machine interface control", IEEE Transactions on Neural Systems and Rehabilitation Engineering, *target submission date of 8/01/2017.*

Abur D.A.†, Lupiani A.A.†, Hickox A.E., Shinn-Cunningham B., **Stepp C.E.** "Loudness perception in Parkinson's disease", Journal of Speech, Language, and Hearing Research, *target submission date of 7/15/2017.*

Invited Talks:

50] *Title TBD*, NCSU/UNC Biomedical Engineering Coulter Seminar Series, Raleigh, North Carolina, October 13, 2017.

49] "Evidence for sensorimotor impairment in hyperfunctional voice disorders", SHBT 25th Anniversary Celebration, Massachusetts Eye and Ear Infirmary, Boston, MA, October 7, 2017.

48] "Sensorimotor control of voice in Parkinson's disease", The Biomedical Signal Processing, Imaging, Reasoning, and Learning (B-SPIRAL) research group seminar series, Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, August 30, 2017.

47] “Objective assessment of vocal hyperfunction”, Keynote Lecture, 5th Occupational Voice Symposium, London, UK, March 28 – 29, 2017.

46] “Auditory-motor impairment as a potential risk factor for hyperfunctional voice disorders”, 5th Occupational Voice Symposium, London, UK, March 28 – 29, 2017.

45] “Hyperfunctional voice disorders: Current results, clinical implications, and future directions of a multidisciplinary research program”, with M. Zanartu, D. Mehta, and R. Hillman, American Speech and Hearing Association (ASHA) Convention, Philadelphia, PA, November 17-19, 2016.

44] “Vocal Fry and Creaky Voice: Linguistic, Physiologic, Perceptual, and Clinical Perspectives”, with L. Davidson, E.R. Hapner, and R.C. Scherer, American Speech and Hearing Association (ASHA) Convention, Philadelphia, PA, November 17-19, 2016.

43] “Etiology and assessment of hyperfunctional voice disorders”, China International Voice and Artistic Voice Expert Forum, Tianjin, China, October 29, 2016.

42] “Etiology and assessment of hyperfunctional voice disorders”, Greater Baltimore Medical Center, Towson, MD, October 14, 2016.

41] “Auditory-motor control of voice in Parkinson’s disease”, Johns Hopkins Medical Center, Baltimore, MD, October 13, 2016.

40] “Sensorimotor Rehabilitation Engineering for Communication”, Communication Sciences and Disorders, Temple University, Philadelphia, PA, April 28, 2016.

39] “Sensorimotor Rehabilitation Engineering for Communication”, Department of Speech and Hearing Science, The Ohio State University, Columbus, OH, February 26, 2016.

38] “Sensorimotor Rehabilitation Engineering for Communication”, College of Health Sciences, University of Delaware, Newark, DE, December 10, 2015.

37] “Identifying the basis of disorders of voice and speech in Parkinson’s disease”, with D. Abur. Engineering Forum, Smith College, Northampton, MA, November 4, 2015.

36] “Engaging Persons with Disabilities: Research Efforts and Opportunities”, Engaging Persons with Disabilities at Iowa State University Workshop Series, Iowa State University, Ames, IA, October 27, 2015.

35] “Facial sEMG interfaces for communication access”, Proceedings of the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 25 – 29 August, 2015.

34] “Cracking the Code of the Most Common Voice Disorder: Mysterious Loss of Voice with No Known Cause”, Rafik B. Hariri Institute for Computing and Computational Science & Engineering, Boston University, Boston, MA, March 11, 2015.

33] “How To Be A Quick-Start Professor”, Panel with R. Patel, D. Weinstein, and P. Anikeeva, Path of Professorship Workshop, Massachusetts Institute of Technology, Cambridge, MA, November 15, 2014.

32] “Lessons Learned from a past ‘Lessons for Success’ Participant”, The American Speech-Language-Hearing Association’s Lessons for Success, Rockville, MD, April 28, 2014.

31] “Objective assessment and sensorimotor bases of vocal hyperfunction”, Massachusetts Eye and Ear Infirmary, Boston, MA, September 25, 2013.

30] “Effects of nonlinear sensory-motor mapping and multi-modal paradigms on human-machine-interface control”, Center for Sensorimotor Neural Engineering, University of Washington, Seattle, WA, March 13, 2013.

29] Panel with M. Grinstaff, C. Evans, D. Roblyer, and M. Wanunu, Academic Career Night, Boston University Biomedical Engineering Graduate Student Committee, Boston, MA, November 14, 2012.

28] “Negotiating the Offer”, Panel with M. Modjaz and L. Kolodziejski, Path of Professorship Workshop, Massachusetts Institute of Technology, Cambridge, MA, October 27, 2012.

27] “Can we Apply Body-Machine-Interfaces to Dysphagia Rehabilitation?”, Madison Swallowing Interdisciplinary Group Monthly Meeting, University of Wisconsin – Madison, Madison, WI, July 19, 2012.

26] “Sensorimotor Rehabilitation Engineering”, Scientific Session 3 – Sensory Systems & Neuroengineering, Boston University Biomedical Engineering Retreat, May 22, 2012.

25] “Voluntary control of anterior neck musculature in individuals with dysphagia”, Boston Action Club, Northeastern University, Boston, MA, February 23, 2012.

24] “Negotiating the Offer”, Panel with A. Wofson, and M. Gonzalez, Path of Professorship Workshop, Massachusetts Institute of Technology, Cambridge, MA, October 29, 2011.

23] “Relative Fundamental Frequency as an Acoustic Correlate of Laryngeal Tension”, Hearing Research Center Seminar, Boston University, Boston, MA, October 7, 2011.

22] “Sensorimotor Rehabilitation through Human-Machine Interaction”, Rehabilitation Institute of Chicago, Chicago, IL, March 16, 2011.

21] “Sensorimotor Rehabilitation through Human-Machine Interaction”, Department of Electrical Engineering and Computer Science, Northwestern University, Evanston, IL, March 15, 2011.

20] “Human-Machine Interactions for Sensorimotor Rehabilitation”, Biomedical Engineering Department, University of Michigan, Ann Arbor, MI, February 25, 2011.

19] “Sensorimotor Neurorehabilitation through Human-Machine Interactions”, Fischell Department of Bioengineering, University of Maryland, College Park, MD, February 16, 2011.

18] “Biosignal Analysis and Augmentation for Rehabilitation of Disordered Sensorimotor Function”, Speech, Language and Hearing Sciences department, Boston University, Boston, MA, February 11, 2011.

17] “Human-Machine Interactions for Rehabilitation of Sensorimotor Function”, Department of Biomedical Engineering, Boston University, Boston, MA, February 9, 2011.

16] “Rehabilitation of Sensorimotor Function through Human-Machine Interfaces”, Thayer School of Engineering, Dartmouth College, Hanover, NH, February 4, 2011.

15] “Sensorimotor Interactions and Augmentation for Neurorehabilitation”, Weldon School of Biomedical Engineering, Purdue University, West Lafayette, IN, January 31, 2011.

14] “Sensorimotor Assessment and Rehabilitation through Biosignal Analysis and Sensory Feedback”, Department of Communication Sciences and Disorders, University of Wisconsin-Milwaukee, Milwaukee, WI, January 27, 2011.

13] “Sensorimotor Interactions for Neurorehabilitation”, School of Biological and Health Systems Engineering, Arizona State University, Tempe, AZ, January 22, 2011.

12] “Biosignal Analysis and Sensory Feedback Augmentation for Sensorimotor Rehabilitation”, Department of Communication Sciences and Disorders, Bowling Green State University, Bowling Green, OH, January 13, 2011.

11] “Human-Machine Interactions for Neurorehabilitation of Sensorimotor Function”, Department of Electrical and Computer Engineering, University of Delaware, Newark, DE, January 10, 2011.

10] “Human-Machine Interactions for Understanding and Rehabilitating Sensorimotor Function”, Department of Mechanical Engineering, Vanderbilt University, Nashville, TN, December 20, 2010.

9] “Rehabilitating Sensorimotor Function through Engineering”, Department of Communication Sciences and Disorders, University of Cincinnati, Cincinnati, OH, December 6, 2010.

8] “Human-Machine Interactions for Understanding and Rehabilitating Sensorimotor Function”, Weekly Seminar Series on Engineering, Neuroscience & Health, University of Southern California, Los Angeles, CA, November 1, 2010.

7] “Neurobotics for Sensorimotor Rehabilitation”, 2nd Northwest Computational Neuroscience Connection, University of Washington, Seattle, WA, October 1-2, 2010.

6] “Sensorimotor Rehabilitation through Robotics”, with Yoky Matsuoka, USA-Japan Workshop on Model-based Assistive Robotic Technologies for Medicine and Rehabilitation, BIOROB, Tokyo, Japan, September 27, 2010.

5] “Sensory feedback for Prosthetic and Robotic Hands”, with Mark Malhotra, Bridging Human Hand Research and the Development of Robotic Technology for Hands, BIOROB, Tokyo, Japan, September 26, 2010.

4] “Engineering Approaches to Speech Rehabilitation”, Cincinnati Children’s Hospital, Cincinnati, OH, May 10, 2010.

3] “Engineering Approaches to Speech Rehabilitation”, Army Audiology & Speech Center, Bethesda, MD, Walter Reed Army Medical Center, March 8, 2010.

2] “Using Surface Electromyography to Study Vocal Hyperfunction”, Speech & Hearing Sciences Colloquium, University of Washington, Seattle, WA, October 2, 2009.

1] “Use of Neck and Face Surface Electromyography to Control a Prosthetic Voice after Total Laryngectomy”, Kinesiology and Nutrition Seminars, University of Illinois – Chicago, Chicago, IL, January 23, 2009.

Teaching (*indicates new course development)

SAR SH810 Academic Grant Preparation and Review Sargent College, Boston University graduate, 2 credits	*Spring 2017: 8 students (co-instructed with Gerald Kidd)
SAR SH523 Introduction to Speech Science Sargent College, Boston University (undergraduate, 4 credits)	*Fall 2011: 22 students Fall 2012: 24 students Fall 2013: 23 students Fall 2014: 28 students Fall 2015: 24 students Fall 2016: 22 students
KHC HS102 The Body Rewired: Reinventing Medicine through Human-Machine Interfaces Kilachand Honors College, Boston University undergraduate, 4 credits	*Spring 2014: 11 students Spring 2016: 16 students
SAR SH801 Behavioral Rehabilitation and Neuroplasticity Sargent College, Boston University graduate, 2 credits	*Spring 2015: 10 students
SAR SH755 Applied Speech Science Sargent College, Boston University graduate, 2 credits	*Spring 2013: 37 students; course instructor D. Mehta, Guest Lecture: *Resonance disorders, perceptual and acoustic features* Spring 2014: 29 students; course instructor T. Perrachione, Guest Lecture: *Lab review of perceptual and acoustic features of resonance disorders*, *How to read scientific figures*

Research Advising (*see publication/presentation lists for trainee authors):

Post-doctoral Primary Mentor

***Rosemary Lester**, PhD, Post-doctoral Fellow in Speech, Language, and Hearing Sciences 2015 – 2016

***Laura Enflo**, PhD, Post-doctoral Fellow in Speech, Language, and Hearing Sciences 2014 – 2015

***Supraja Anand**, PhD, Post-doctoral Fellow in Speech, Language, and Hearing Sciences 2014 – 2014

Post-doctoral Co-Mentor

Evan Usler, PhD, Post-doctoral Fellow, in Speech, Language, and Hearing Sciences 2017 – 2019
(beginning Sep 1, 2017)

***Lenny A. Varghese**, PhD, Post-doctoral Fellow, Computational Neuroscience & Neural Technology 2013 – 2015

Doctoral Student Primary Mentor

***Defne Abur**, PhD in Speech, Language, and Hearing Sciences
Academic Advisor / Research Supervisor 2017 – present
(admitted, beginning Sep 1, 2017)
Winner of the Second-place Best Poster Award at the Voice Foundation Annual Symposium 2017

Matti Groll, PhD in Biomedical Engineering
Research Rotation Supervisor, potential Research Supervisor 2017 – present

(admitted, beginning Sep 1, 2017)

***Yeonggwang (Paul) Park**, PhD in Speech, Language, and Hearing Sciences
Academic Advisor / Research Supervisor 2016 – present

***Jennifer Vojtech**, PhD in Biomedical Engineering
Academic Advisor / Research Supervisor 2015 – present
Quantitative Biology and Physiology Training Grant, 5T32GM008764-14, National Institute of General Medical Sciences, National Institutes of Health 2015 – 2016
National Science Foundation (NSF) Graduate Research Fellowship Program Fellowship 2017 – 2020

***Victoria McKenna**, PhD in Speech, Language, and Hearing Sciences 2015 – present
Academic Advisor / Research Supervisor
Winner of the First-place Best Poster Award at the Voice Foundation Annual Symposium 2016
Qualifying Project Committee Member, Project: "Neck-Surface Accelerometer Signals as an Estimation of Subglottal Pressure during Modulated Vocal Quality in Healthy Speakers" 2016
Recipient, Dudley Allen Sargent Research Fund grant 2016 – 2017
Trainee, Boston University Institutional Training Grant (T32) DC013017 from the NIH/NIDCD "Advanced Research Training in Communication Sciences and Disorders" 2016 – 2018
Member, Voice and Alaryngeal Communication Program Committee, ASHA Convention 2016 – 2017
Participant, ASHA Pathways Program 2017

***Gabriel Cler**, PhD in Neuroscience (Computational focus)
Research Supervisor 2013 – present
Co-Advisor, Computational Neuroscience Training Grant 2014 – 2015
Qualifying Exam Member, Project: "Optimization and Predictive Methods for Phonemic Communication Interfaces" 2014
Winner of a 2014 EMBC Student Travel Award 2014
NIH NRSA (F31): "Optimization and prediction for fast and robust AAC" 2015 – 2018
Henry I. Russek Student Achievement Award – First place 2015
Participant, ASHA Lessons for Success Program 2016
Student Scholar Award for 11th Annual Eleanor M. Saffran Conference on Cognitive Neuroscience and Rehabilitation of Communication Disorders 2016
Member, Speech and Language Science Program Committee, ASHA Convention 2016 – 2017

***Elizabeth Heller Murray**, PhD in Speech, Language, and Hearing Sciences
Academic Advisor / Research Supervisor 2013 – present
Boston University, Speech, Language, and Hearing Science Travel Award 2013, 2014, 2015
Recipient, Dudley Allen Sargent Research Fund grant 2014 – 2015
Qualifying Project Committee Member, Project: "Effect of visual feedback on velopharyngeal port control" 2014
Resident Student Editor, Journal of Voice 2014 – 2016
Winner of a 2015 American Speech-Language-Hearing Foundation New Century Scholars Doctoral Scholarship 2015
Winner of a 2016 CAPCSD Doctoral Fellowship 2016
Participant, ASHA Pathways Program 2016
Hariri Graduate Fellows Program 2016 – 2017
NIH NRSA (F31): "Vocal motor control in children with vocal nodules" 2017 – 2020

***Yu-An (Stephanie) Lien**, PhD in Biomedical Engineering
Academic Advisor / Research Supervisor 2012 – 2015
Winner of the 2013 Advances in Quantitative Laryngology Best Paper Award 2013
Winner (Mentee) of a 2013 American Speech-Language-Hearing Association's (ASHA's) Research Mentoring-Pair Travel Award (RMPTA) 2013
Winner of a 2013 American Speech-Language-Hearing Associations (ASHA) Student Research Travel Award for submitting the top student paper in "Voice, Resonance, and Alaryngeal Speech" 2013

<u>Doctoral Student Co-Mentor</u>
***Dante Smith**, PhD in Computational Neuroscience

Research Rotation Supervisor 2012
Co-Advisor, Computational Neuroscience Training Grant 2013 – 2015
Qualifying Exam Member, Project: "Multimodal feedback training for steady-state visual evoked potential brain-computer-interfaces" 2014
Henry I. Russek Student Achievement Award – Third place 2015

Doctoral Committee Member

Andres Salazar, PhD in Cognitive and Neural Systems 2016
Dissertation Committee Member
Dissertation: "Use of error-related potentials for adaptive decoding and for direct binary control in brain-machine-interfaces"

Byron Galbraith, PhD in Cognitive and Neural Systems 2015
Dissertation Committee Member
Dissertation: "A brain-machine interface for assistive robotic control"

Hari M. Bharadwaj, PhD in Biomedical Engineering
Dissertation Committee Member 2013 – 2014
Dissertation: "Individual differences in supra-threshold auditory perception – mechanisms and objective correlates"

Asako (Kaneoka) Satoh, PhD in Speech, Language, and Hearing Sciences
Qualifying Project Committee Member 2013 – 2014
Qualifying Project: "A Comparison of Two Methods of Endoscopic Laryngeal Sensory Testing: A Preliminary Study"
Dissertation Committee Member 2014 – 2016

Keri Miloro, PhD in Speech, Language, and Hearing Sciences
Qualifying Project Committee Member 2013
Qualifying Project: "Does improving the cough function reduce silent aspiration in Parkinson's disease?"

Doctoral Student Rotation Supervisor

Samuel Brown, PhD in Biomedical Engineering 2015

Janis Intoy, PhD in Computational Neuroscience 2015

Lia Bonacci, PhD in Biomedical Engineering 2014

Winnie Wong, PhD in Biomedical Engineering 2012

Matthew Jacobsen, PhD in Biomedical Engineering 2012

Regina Baumgaertel, PhD in Biomedical Engineering 2012

Masters Thesis Primary Mentor

Jennifer Hylkema, MS in Speech-Language Pathology 2016 – present
Thesis: "Voice onset time in hyperfunctional voice disorders"

Lauren MacLellan, MS in Speech-Language Pathology 2015 – present
Thesis: "Evaluating Camera Mouse as a Computer Access System for Augmentative and Alternative Communication in Cerebral Palsy: A Case Study"

*__Carolyn Calabrese__, MS in Speech-Language Pathology 2013 – 2015
Thesis: "Differential specificity of acoustic measures to listener perceptions of voice quality"

*__Kerri Downing__, MS in Speech-Language Pathology 2013 – 2015
Thesis: "Perceptual judgments of hypernasality and audible nasal emissions in speech of children with cleft palate"

*__Caitlin Gattuccio__, MS in Speech-Language Pathology 2011 – 2013
Thesis: "The Effects of Linguistic Factors on Analysis of Relative Fundamental Frequency in Typical Speakers"

*__Margaux Canevari__, MS in Health Sciences 2011 – 2012

Thesis: “Acoustic Correlates of Intelligibility in Parkinsonian Speech”

Masters Student Primary Research Mentor

Wendy Feinstein, MS in Speech-Language Pathology 2016 – present

Jessica Silfen, MS in Speech-Language Pathology 2015 – 2017

***Talia Mittelman**, MS in Biomedical Engineering (BU LEAP program) 2015 – present

*__Alexandra Martinson__, MS in Speech-Language Pathology 2013 – 2015

Erin Burkett, MS in Speech-Language Pathology 2014 – 2015

Masters Student Thesis Committee Mentor

Liana Guo, MS in Speech-Language Pathology, MGH Institute for Health Professions 2012 – 2013
Thesis: “Generating Tonal Distinctions in Mandarin Chinese Using an Electrolarynx with Pre-Programmed Tone Patterns”

Elizabeth Heller, MS in Speech-Language Pathology, MGH Institute for Health Professions 2012 – 2013
Thesis: “Naturalness of Electrolarynx Speech Produced with Electromyographic versus Manual Control”

Anh Nguyen, MS in Speech Language Pathology 2011 – 2013
Thesis: “An Application of Steady State Visual Evoked Potential (SSVEP) Brain-Computer Interface As An Augmentative Alternative Communication System for Individuals with Locked-In Syndrome”

Jessica Pisegna, MS in Speech Language Pathology 2011 – 2013
Thesis: “The Efficacy of the Masako Maneuver”

Katherine Field, MS in Speech Language Pathology 2011 – 2013
Thesis: “The Boston Residue and Clearance Scale (BRACS): Criterion Validity”

Asako (Kaneoka) Satoh, MS in Speech Language Pathology 2011 – 2012
Thesis: “The Boston Residue and Clearance Scale: Reliability Testing”

Undergraduate Student Primary Mentor

Zach Morgan, BS in Biomedical Engineering 2017 – present

Katharine Kolin, BS in Neuroscience and BS in Computer Science 2017 – present

Jake Noordzij, BS in Biomedical Engineering 2016 – present
UROP Student Research Award ($1650) Spring 2017
UROP Student Research Award ($4200) Summer 2017
Summer Term Alumni Research Scholar ($3725) Summer 2017

Nadia Oleinik, BS in Human Physiology 2016 – present
UROP Student Research Award ($1650) Spring 2017
UROP Faculty Matching Grant Award ($2100) Summer 2017

Victoria Frick, BS in Biomedical Engineering
Senior Project Advisor 2016 – 2017
Project: “Design of an Electromyographic Switch for Communication Systems”

Evi Shiakolas, BS in Mechanical Engineering
Senior Project Advisor 2016 – 2017
Project: “Design of an Electromyographic Switch for Communication Systems”

Andreas Singer, BS in Computer Science 2016 – present

Sophia Letcher, BS in Neuroscience, Kenyon College Summer 2016

Nicole Enos, BS in Biomedical Engineering 2016 – present
UROP Student Research Award ($1650) Fall 2016
UROP Student Research Award ($1650) Spring 2017
UROP Student Research Award ($4200) Summer 2017
Summer Term Alumni Research Scholar ($3725) Summer 2017

Richard Fu, BS in Biomedical Engineering — 2016
UROP Student Research Award ($4200) — Summer 2016

Saniya Shah, BS in Biomedical Engineering — 2015 – 2016
Senior Project Advisor
Project: “Human-machine-interfacing for communication access in severe paralysis”

Amrita Nishtala BS in Biomedical Engineering — 2015 – 2016
Senior Project Advisor
Project: “Human-machine-interfacing for communication access in severe paralysis”

Grace O’Donnell, BS in Neuroscience
Research Supervisor — 2015 – 2016
UROP Student Research Award ($1500) — Spring 2016

Ashling Lupiani, BS in Neuroscience
Research Supervisor — 2015 – 2017
NIH Undergraduate Fellowship in Computational Neuroscience — 2015 – 2017
(stipend for three semesters of full-time research, travel, supplies)

Theodore Kahn, BS in Biology
Research Supervisor — 2015

Kate Girouard, BS in Biomedical Engineering
Research Supervisor — 2014 – 2017
UROP Student Research Award ($4200) — Summer 2015
Summer Term Alumni Research Scholar ($3200) — Summer 2015
Senior Project Advisor — 2016 – 2017
Project: “Design of an Electromyographic Switch for Communication Systems”

Christina Stevens, BS in Biomedical Engineering
Senior Project Advisor — 2013 – 2014
Project: “Design of Training Interfaces for Intonation Control with an Electromyographic Voice Prosthesis”
Research Supervisor — 2013 – 2014
Summer Term Alumni Research Scholar ($3200) — Summer 2013

Felicia Patel, BS in Biomedical Engineering
Senior Project Advisor
Project: “Design of Training Interfaces for Intonation Control with an Electromyographic Voice Prosthesis” — 2013 – 2014

Juliana Valentin, BS in Biomedical Engineering
Senior Project Advisor — 2013 – 2014
Project: “Design of Training Interfaces for Intonation Control with an Electromyographic Voice Prosthesis”
Research Supervisor — 2013

*Joseph Mendoza, BS in Biomedical Engineering
Research Supervisor — 2013 – 2015

*Carolyn Michener, BS in Speech, Language, and Hearing Sciences
Research Supervisor — 2012 – 2016
Mentor, Sargent College Thesis for Distinction — 2015 – 2016
Project: “Extending relative fundamental frequency measures to aperiodic voices with computational pitch estimates based on auditory perceptual modeling”
UROP Student Research Award ($750) — Fall 2013
UROP Student Research Award ($1500) — Spring 2014
CELEST Summer Program for Undergraduates ($4500 + housing costs) — Summer 2014
UROP Student Research Award ($1500) — Fall 2014
UROP Student Research Award ($4200) — Summer 2015

Lynne Messina, BS in Biomedical Engineering

Senior Project Advisor 2012 – 2013
Project: ”Design of Noninvasive Technology for Real-time Estimation of Hyolaryngeal Kinematics for Videogame Control”

Emily Bonazelli, BS in Biomedical Engineering
Senior Project Advisor 2012 – 2013
Project: ”Design of Noninvasive Technology for Real-time Estimation of Hyolaryngeal Kinematics for Videogame Control”
Research Supervisor 2012

Lauren Kalfin, BS in Biomedical Engineering
Research Supervisor 2012 – 2013

*Gabrielle Hands, BS in Neuroscience
Research Supervisor, UROP research mentor 2011 – 2014
UROP Faculty Matching Grant award ($2000) Summer 2012
Howard Hughes Medical Institute Research Supplies Award ($750) Summer 2012
2012 Undergraduate Research Symposium Poster Presentation: “Effects of Sensory Training Modality on Control of an Auditory Body-Machine-Interface” Fall 2012
UROP Student Research Award ($1750) Fall 2013
UROP Faculty Matching Grant award ($750) Spring 2014

Nisha Dhawlikar, BS in Biology 2011 – 2013
Research Supervisor

Alan Pacheco, BS in Biomedical Engineering 2011 – 2013
Research Supervisor

*Howard Terry, BS in Biology 2011 – 2012
Research Supervisor

*Boris Virnik, BS in Biomedical Engineering
Senior Project Advisor 2011 – 2012
Project: ”Design of a Novel Videogame Based Rehabilitation Tool for Velopharyngeal Dysfunction”

*Elias Thorp, BS in Biomedical Engineering
Senior Project Advisor 2011 – 2012
Project: ”Design of a Novel Videogame Based Rehabilitation Tool for Velopharyngeal Dysfunction”
Research Supervisor 2012

<u>Undergraduate Honors Thesis Committee Member</u>
Jessica Malloy, BS in Neuroscience
Committee Member, Independent Work for Distinction in Neuroscience 2012 – 2013
Project: “Delayed auditory feedback and syllable sequencing: behavioral and pilot EEG studies”

<u>High School Students, Primary Research Mentor</u>
Max Hardcastle, BU Academy (co-mentors, Defne Abur & Elizabeth Heller Murray) 2015 – 2016
Praneet Polineni, BU RISE Program (co-mentor, Lenny Varghese) 2014
William Cunningham, BU Academy (co-mentor, Gabriel Cler) 2014 – 2015
Ilya Yudkovich, BU Academy 2013

Student Academic Advising:

AY 2016 – 2017	9 undergraduate students	5 graduate students
AY 2015 – 2016	6 undergraduate students	3 graduate students
AY 2014 – 2015	8 undergraduate students	3 graduate students
AY 2013 – 2014	13 undergraduate students	2 graduate students

AY 2012 – 2013	10 undergraduate students	1 graduate student

Departmental-level Service:

Member, Chair Search Committee Department of Speech, Language, and Hearing Sciences	2017 – 2018
Member, Assistant Professor Search Committee Department of Biomedical Engineering	2016 – 2017
Member, Clinical Assistant Professor Search Committee Department of Speech, Language, and Hearing Sciences	2015 – 2016
Member, Assistant Professor Search Committee Department of Biomedical Engineering	2016 – 2017
Steering Committee Member, Quantitative Biology and Physiology training grant Department of Biomedical Engineering	2017 – present
Chair, ASHA 2018 Reception Planning Committee	2017 – 2018
Guest Lecture BE 790, Boston University	2011, 2012, 2014
Member, Colloquium Series Organization Committee Department of Speech, Language, and Hearing Sciences, Boston University	2012 – 2015

College-level Service:

Organizer, Sargent College Internal Grant Review	2014 – present
Member Undergraduate Education Committee, Sargent College, Boston University	2012 – 2016
Member, Sargent Voice Clinic Development Committee	2014 – present
Member, Dudley Allen Sargent Research Fund Review Committee	2014 – 2015, 2017
Member, Sargent College Faculty Support Committee	2016 – present
Member, Sargent Virtual Conference Committee	2015
Guest Lecture, SAR RS890	2013, 2014
Guest Lecture, SAR SH810	2013

University-level Service:

Executive Committee Member, Advanced Training in Communication Sciences Program	2014 – present
Member and Executive Board Member Center for Research in Sensory Communication & Emerging Neural Technology	2016 – present
Member, Graduate Program for Neuroscience Curriculum Development Committee	2014 –2015
Member Boston University CompNet Outreach and Meeting Initiatives Committee	2012 – 2016
Boston University Representative Faculty Advisory Group for Kuali Coeus user interface	2013 – 2014
Member, Faculty Advisory Group for New Research Website	2013
Graduate Program for Neuroscience “Frontiers” course participant	Fall 2012

Professional Service:

Grant Review:

NIH Motor Function and Speech Rehabilitation (MFSR) Ad hoc Reviewer	June 2017 October 2016 February 2016
NIDCD Communication Disorders Review Committee (CDRC) Ad hoc Reviewer	February 2017
NIH BBBP-T (91) Ad hoc Review Panel Reviewer	April 2017
Reviewer NSF IIS CAREER Panel	2016
Reviewer NSF Panel SCH-EXP, Smart and Connected Health Program	2013
Reviewer NSF Panel SCH-EXP, Smart and Connected Health Program	2014
Reviewer NSF CHS CRII Panel	2014
Reviewer American Speech-Language-Hearing Foundation Grant Review	2014

Conferences, workshops, and journals:

Member of Speech Motor Control Track Program Committee 2018 Conference on Motor Speech, Savannah, GA	2017 – 2018
Organizer, 2017 Boston Speech Motor Control Mini-Symposium	2017
Editorial Board Member, Journal of Speech, Language, and Hearing Research	2017
Organizer, Boston Speech Motor Control Working Group	2014 – present
Member, Speech and Language Science Program Committee American Speech-Language-Hearing 2017 Annual Convention	2016 – 2017
Member, Voice and Alaryngeal Program Committee American Speech-Language-Hearing 2017 Annual Convention	2016 – 2017
Member, Voice and Alaryngeal Program Committee American Speech-Language-Hearing 2016 Annual Convention	2015 – 2016
Member, Program Committee; Session Chair 10th International Conference on Voice Physiology and Biomechanics (ICVPB)	2015 – 2016
Co-Moderator, Session III: “Voice Disorder” American Bronchoesophagological Association Annual Meeting	2015
Member, Voice and Alaryngeal Program Committee American Speech-Language-Hearing 2015 Annual Convention	2014 – 2015
Member, Voice, Resonance, and Alaryngeal Committee American Speech-Language-Hearing 2014 Annual Convention	2013-2014
Member of Speech Motor Control Track Program Committee 2014 Conference on Motor Speech, Sarasota, FL	2013 – 2014
Table Host: “Negotiating Interdisciplinary Collaborations” 19th annual Research Roundtables at the 2016 ASHA Convention	2016
Table Host: “Promoting Your Career through Social Media”	2015

18th annual Research Roundtables at the 2015 ASHA Convention

Table Host: “How to Advance your Program of Research in a Difficult Funding Climate” 2014
17th annual Research Roundtables at the 2014 ASHA Convention

Reviewer, Speech Communication Student Poster Competition 2014
167th Meeting of the Acoustical Society of America

Poster Judge 2017
Voice Foundation Annual Symposium

Panel Member, New Investigator Forum 2017
Voice Foundation Annual Symposium

Organizer, Associate Editor, Session Chair: “Neural Engineering in Speech and Hearing” 2013
IEEE Engineering in Medicine and Biology Conference 2013, Osaka, Japan

Reviewer 2013
IEEE Engineering in Medicine and Biology Conference 2013, Osaka, Japan

Invited Session Chair: “Rehabilitation Engineering for Speech and Hearing Applications” 2012
IEEE Engineering in Medicine and Biology Conference 2012, San Diego, CA

Session Co-Chair: “Human Performance I” 2012
IEEE Engineering in Medicine and Biology Conference 2012, San Diego, CA

Reviewer 2012
IEEE Engineering in Medicine and Biology Conference 2012, San Diego, CA

Member of Speech Motor Control Track Program Committee 2011 – 2012
2012 Conference on Motor Speech, Santa Rosa, CA

Invited Session Chair: “Assistive Technology for Human Communication” 2011
Track co-Chair: “Human-Robot Interaction and Robot-aided Living for a Healthier Tomorrow”
IEEE Engineering in Medicine and Biology Conference 2011, Boston, MA

Reviewer 2011
IEEE Engineering in Medicine and Biology Conference 2011, Boston, MA

Ad hoc Reviewer 2008 – present
IEEE Transactions on Neural Systems and Rehabilitation Engineering, IEEE Transactions on Biomedical Engineering, Journal of Speech, Language, and Hearing Research, International Conference on Robotics and Automation (ICRA), IEEE/ASME Transactions on Mechatronics, Journal of Rehabilitation Research and Development, Journal of NeuroEngineering and Rehabilitation, Medical Engineering & Physics, Human Movement Science, Computers in Biology and Medicine, American Journal of Speech-Language Pathology, Folia Phoniatrica et Logopaedica, Journal of Laryngology and Voice, Speech Communication, Diseases of the Esophagus, Journal of Electromyography and Kinesiology, Medical & Biological Engineering & Computing, IEEE Transactions on Human-Machine Systems, Dysphagia, Laryngoscope, International Journal of Speech-Language Pathology, Journal of the Acoustical Society of America, Science Translational Medicine