

DARYUSH D. MEHTA

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CURRENT APPOINTMENTS

Massachusetts General Hospital Boston, MA Research Staff (Assistant Investigator), Center for Laryngeal Surgery & Voice Rehabilitation Director, Voice Science and Technology Laboratory	Oct 2011–Present Apr 2017–Present
Harvard Medical School Boston, MA Assistant Professor of Surgery, Department of Surgery Affiliated Faculty, Program in Speech and Hearing Bioscience and Technology	Jan 2017–Present Mar 2017–Present
MGH Institute of Health Professions Charlestown, MA Adjunct Assistant Professor, Department of Communication Sciences and Disorders, School of Health and Rehabilitation Sciences	Sep 2013–Present

PAST APPOINTMENTS

Harvard Medical School Boston, MA Instructor, Department of Surgery	Oct 2011–Dec 2016
Boston University Boston, MA Lecturer, Department of Speech, Language and Hearing Sciences, College of Health & Rehabilitation Sciences: Sargent College	Jan 2013–May 2013
Harvard University Cambridge, MA Research Associate in Electrical Engineering, School of Engineering and Applied Sciences	Sep 2011–Aug 2012
MIT Lincoln Laboratory Lexington, MA Research Assistant, Human Language Technology Group	Jun 2004–May 2010

POSTDOCTORAL TRAINING

Massachusetts General Hospital Boston, MA Center for Laryngeal Surgery & Voice Rehabilitation, Department of Voice and Voice Disorders Advisor: Robert E. Hillman	Mar 2010–Sep 2011
Harvard University Cambridge, MA Electrical Engineering, School of Engineering and Applied Sciences Advisor: Patrick J. Wolfe	Mar 2010–Aug 2011

EDUCATION

Massachusetts Institute of Technology Cambridge, MA Doctor of Philosophy in Speech and Hearing Bioscience and Technology Harvard–MIT Division of Health Sciences and Technology Thesis: <i>Impact of human vocal fold vibratory asymmetries on acoustic characteristics of sustained vowel phonation</i> Thesis Committee: Robert E. Hillman (co-advisor), Thomas F. Quatieri (co-advisor), Dimitar D. Deliyski, Joseph S. Perkell Qualification Exam Committee: Kenneth N. Stevens, Alan V. Oppenheim, James R. Glass	Feb 2010
Massachusetts Institute of Technology Cambridge, MA Master of Science in Electrical Engineering and Computer Science MIT Lincoln Laboratory Thesis: <i>Aspiration noise during phonation: Synthesis, analysis, and pitch-scale modification</i>	Feb 2006

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Advisor: Thomas F. Quatieri

University of Florida Gainesville, FL
Bachelor of Science in Electrical Engineering (summa cum laude)
Minor in Music Performance (clarinet)
Honors Thesis: *Real-time display of human voice pitch using a digital signal processor*
Thesis Committee: John G. Harris (advisor), Mitchell S. Estrin, Keith J. Rambo

Aug 2003

FUNDED PROJECTS

NIH-NIDCD 1 R43 DC017407-01

Aug 2018–Jul 2020

Role: Site Principal Investigator
PI: Gopi Maguluri (Physical Sciences, Inc.)
\$20,772 subcontract

In vivo laryngeal imaging combining parallel OCT with videostroboscopy

This project seeks to develop a novel three-dimensional clinical imaging system that will combine parallel optical coherence tomography and videostroboscopy to assess vocal fold surface and subsurface during phonation. As Site PI, I oversee and execute benchtop testing of the imaging system at MGH using excised larynx models.

NIH-NIDCD 1 P50 DC015446-01A1

Apr 2017–Mar 2022

Role: Principal Investigator (Scientific Core), Co-Investigator (Project 1)
Clinical research center for the improved prevention, diagnosis, and treatment of vocal hyperfunction
\$3,343,174

The goal of the proposed project is to establish a Clinical Research Center that brings together a multidisciplinary team of experienced investigators to pursue a comprehensive program of research focused on hyperfunctional voice disorders. As PI of Scientific Core B, I oversee a critical component that will provide central services and resources in support of three research projects of the proposed Center.

NIH-NIDCD 1 R21 DC015877-01

Jan 2017–Dec 2019

Role: Principal Investigator
Non-invasive estimation of subglottal pressure during natural speech to improve clinical voice assessment
\$300,000

This project seeks to develop a methodology for estimating subglottal pressure during natural speech using inexpensive accelerometer-based voice monitoring technology that unobtrusively tracks neck-surface vibrations. As PI, I collaborate with MGH clinical staff and oversee the work of a graduate student/postdoc and an international consultant.

NIH-NIDCD 1 R01 DC015570-01

Jul 2016–Jun 2021

Role: Site Principal Investigator
PI: Cara Stepp (Boston University)
An acoustic estimate of laryngeal tension for clinical assessment of voice disorders
\$66,627 subcontract of \$1,250,000 total award

The goal of this project is to systematically validate an acoustic measure of laryngeal tension called relative fundamental frequency in two voice disorder populations that span age and etiology (functional vs. neurological). As Site PI, I oversee the enrollment of patients at MGH, including the acquisition, processing, and sharing of deidentified data with Boston University from 50–100 patients diagnosed with vocal hyperfunction. The MGH team will also provide consultation on the collection, analysis and interpretation of acoustic data, and will participate in the dissemination of results.

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NIH-NIDCD 2 R01 DC005642

Nov 2015–Aug 2020

Role: Site Principal Investigator

PI: Michael Krane (Pennsylvania State University)

Glottal jet aerodynamics

\$28,728 subcontract of \$1,250,000 total award

The goal of this project is to address the underlying physics of phonation, focusing on how the energy in the subglottal airstream is partitioned into work to vibrate the vocal folds and produce sound. As Site PI, I consult on the experimental setup at Penn State University and providing deidentified human subject data from MGH's clinical databases that are important for validating the physics-based models developed during the project.

MGH Center for Assessment Technology and Continuous Health (CATCH)

Jun 2014–Present

Role: Co-Investigator

Co-PIs: Robert E. Hillman and Steven M. Zeitels

Impact of congestive heart failure (CHF) on voice and speech production: A pilot study

The purpose of this project is to determine whether acoustic and accelerometric voice-related measures can characterize patients with volume overload before and after successful diuresis of amounts of fluid. As co-investigator, I aided in study design and supervised data collection and analysis of speech and voice signals from ten patients with congestive heart failure.

NIH-NIDCD 1 R21 DC011588, 4 R33 DC011588

Apr 2011–Mar 2016

Role: Investigator

PI: Robert E. Hillman

Ambulatory monitoring of vocal function to improve voice disorder assessment

R21 phase (\$275,000), R33 phase (\$1,400,000)

The goal of the first (R21) phase of this project was to develop and test a voice monitoring platform for long-term data acquisition of neck skin acceleration. The R33 phase follows up with a large-sample study to discriminate patients with voice disorders and matched controls. As co-investigator, I oversaw the design and implementation of ambulatory monitoring systems provided to over 200 subjects over the five-year project period. I continue to supervise subject enrollment, mentor students, manage research assistants, and oversee data quality management for the sharing of deidentified information with collaborators.

NIH-NIDCD 1 R43 DC013743

Jan 2014–Dec 2014

Role: Site Principal Investigator

Integrating optical coherence tomography with laryngeal high-speed videoendoscopy

SBIR with Physical Sciences, Inc. (\$42,000 subcontract of \$225,000 total award)

The goal of this project was to develop a clinical endoscope for imaging vocal fold vibration using the two complementary modalities of optical coherence tomography (OCT) and high-speed videoendoscopy (HSV). As Site PI, I oversaw the integration of HSV technology I developed at MGH with the novel OCT endoscope developed by Physical Sciences, Inc. MGH provided an excised tissue testbed for validating the hybrid OCT-HSV system in preparation for future clinical voice assessment in human subjects.

American Speech-Language-Hearing Foundation Speech Science Research Grant

Nov 2012–Dec 2013

Role: Principal Investigator

Acoustic Impact of vocal fold vibratory irregularities in an ex vivo model

\$5,000

The specific aims of this project consisted of analyzing imaging, aerodynamic, and acoustic data to determine relationships between vocal fold vibratory irregularity and acoustic sound characteristics using an excised larynx model. The funding supported a weeklong international collaboration at University Hospital Erlangen in Germany and two student clinicians at MGH, yielding multiple conference proceedings, a peer-reviewed journal article, and a doctoral dissertation.

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Research Councils United Kingdom (RCUK) Science Bridges

Apr 2010–Mar 2012

Role: Principal Investigator

Objective voice quality analysis by spectrogram entropy

Manchester Integrating Medicine & Innovative Technology (MIMIT)–Center for Integration of Medicine & Innovative Technology (CIMIT) Collaborative Project

Subcontract from MIMIT (£10,000)

The goal of this project was to take advantage of a new mathematical technique to yield quantitative parameters that correlate highly with perceptions of voice quality. As PI, I oversaw the signal processing effort and also made available clinical voice databases that are critical for the validation of new algorithms.

UNFUNDED PROJECTS

Voice Health Institute

Apr 2016–Present

Role: Co-Investigator

Co-PIs: Robert E. Hillman and Steven M. Zeitels

Identification of denervated laryngeal muscles using low-frequency transcutaneous stimulation

The purpose of this project is to better characterize the time course of denervation-related movement of the vocal folds in an in vivo large-animal model using low-amplitude, low-frequency transcutaneous electrical stimulation. As co-investigator, my role is to apply my expertise in high-speed video imaging of the larynx to compute objective measures of vocal fold tissue motion that correlate with transcutaneous stimulation.

HONORS AND PRIZES

Sataloff Award for Young Investigators Philadelphia, PA

May 2019

48th Annual Symposium of The Voice Foundation: Care of the Professional Voice

Awarded by committee to a promising young investigator. Recipient receives a travel award and registration

Method for vertical calibration of laser-projection transnasal fiberoptic high-speed videoendoscopy (senior author)

Highest-Rated Student-Authored Paper in Its Convention Topic Area Philadelphia, PA

Nov 2016

Annual Convention of the American Speech-Language-Hearing Association

Awarded to the highest-rated student-authored paper in its Convention topic area. Student receives a travel award and registration

Correlating ambulatory voice measures with vocal fatigue self-ratings in individuals with MTD & normal controls (senior author)

Hamdan International Presenter Award Philadelphia, PA

Jun 2016

45th Annual Symposium of The Voice Foundation: Care of the Professional Voice

Awarded to one investigator traveling from outside the United States to present at the conference

Acoustic perturbation measures improve with increasing vocal intensity in healthy and pathological voices (senior collaborating author)

Meritorious Poster Submission Denver, CO

Nov 2015

Annual Convention of the American Speech-Language-Hearing Association

Awarded annually to a small percentage of poster submissions to the annual convention of the American Speech-Language-Hearing Association that is judged to show extraordinary, exceptional, and innovative work

Estimating subglottal pressure during phonation with a neck-surface accelerometer sensor (senior author)

Award for Early Career Contributions in Research Denver, CO

Jul 2015

American Speech-Language-Hearing Association

Awarded annually to early-stage investigators for exceptional contributions to clinical research

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- Director's Team Achievement Award** Lexington, MA Jun 2015
MIT Lincoln Laboratory
Awarded annually to a small percentage of Laboratory teams recognized for their significant contributions and achievements.
Objective vocal and facial biomarkers (team member)
- Best Entry for the Depression Recognition Sub-Challenge** Orlando, FL Nov 2014
Fourth International Audio/Visual Emotion Challenge (AVEC 2014), 22nd ACM International Conference on Multimedia
Vocal and facial biomarkers of depression based on motor incoordination and timing (co-author)
- David W. Brewer Award for Best Poster** Philadelphia, PA May 2014
The Voice Foundation Symposium
Awarded annually at the annual symposium of the Voice Foundation for best conference poster
Relationships between the Cepstral-Spectral Index of Dysphonia and vocal fold vibratory function during phonation (senior author)
- Best Entry for the Depression Recognition Sub-Challenge** Barcelona, Spain Oct 2013
Third International Audio/Visual Emotion Challenge (AVEC 2013), 21st ACM International Conference on Multimedia
Vocal biomarkers of depression based on motor incoordination (co-author)
- Lessons for Success Research Workshop Selection** Rockville, MD Apr 2013
American Speech-Language-Hearing Association
Selected as one of 30 early-stage scientists in the field of speech, language, and hearing to attend an intensive workshop on career development
- Honorary Senior Fellow** Melbourne, Australia Aug 2011
Department of Otolaryngology, The University of Melbourne
- Broyles-Maloney Award** Las Vegas, NV Mar 2010
American Broncho-Esophagological Association
Awarded annually for outstanding accomplishments in advancing the art and science of bronchoesophagology and closely related subjects
Assessment of canine vocal fold function after injection of a new biomaterial designed to treat phonatory mucosal scarring (co-author)
- Best Student Paper in Speech Communication** Portland, OR May 2009
Acoustical Society of America
An impedance-based inverse filtering scheme with glottal coupling (co-author)
- First Place Poster Award in Laryngology/Bronchoesophagology** Boston, MA Jan 2009
Eastern Section of the Triological Society
Integration of ultra high-speed color videoendoscopy with time-synchronized measures of vocal function (first author)
- Four-Year Scholar Award** Gainesville, FL Aug 2003
University of Florida
One of only a few students chosen college-wide by a Faculty Selection Committee to be recognized at commencement.

TEACHING EXPERIENCE

- Harvard University** Boston, MA Aug 2012–Present
Signals and Systems
Guest Lecturer
Signals and systems theory and application to speech and hearing sciences to 10 incoming doctoral students in the Speech and Hearing Bioscience and Technology Program. One 3-hour lecture per year.
- Massachusetts Institute of Technology** Cambridge, MA Mar 2012–Present
Speech Communication
Guest Lecturer (Course instructor: Satrajit Ghosh)
Digital signal processing and automatic speech recognition for 10 graduate students in electrical engineering and speech and hearing science disciplines. One to three 1.5-hour lectures per year.
- National Taipei University of Nursing and Health Sciences** Taipei, Taiwan Oct 2017
Voice and Voice Disorders
Guest Lecturer (Course instructor: Roger Chan)
Mobile voice health monitoring (Smartphone-based ambulatory monitoring of vocal function to improve voice disorder assessment) for 50 graduate students in speech-language pathology. One 1-hour lecture.
- University of Northern Iowa** Cedar Rapids, IA Sep 2017
Disorders of Voice
Guest Lecturer (Course instructor: Lisa Kopf)
Endoscopic imaging (stroboscopy, high-speed videoendoscopy, and kymography) for 50 graduate students in speech-language pathology. One 1-hour lecture via videoconference.
- Dhirubhai Ambani Institute of Information and Communication Technology** Jul 2016
Gandhinagar, India
Summer School on Speech Signal Processing
Invited International Guest Lecturer
Speech source modeling and applications to students, researchers, and professionals in a weeklong summer school. Two 1.5-hour lectures.
- Boston University** Boston, MA Jan 2013–May 2013
Applied Speech Science
Course instructor
Led a two-credit, semester-long course on speech science to provide a clinical research foundation for 40 Master's-level students in speech-language pathology.
- Lasell College** Newton, MA Mar 2011, Feb 2012
Introduction to Human Communication
Guest Lecturer (Course instructor: Rebecca Evans)
Gave one-hour presentation on voice and speech science to 25 undergraduate students in various liberal arts disciplines.
- Lasell College** Newton, MA Mar 2011
Introduction to Mass Media
Guest Lecturer (Course instructor: Rebecca Evans)
Gave one-hour presentation on voice and speech science to 25 undergraduate students in various liberal arts disciplines.

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MGH Institute of Health Professions Charlestown, MA Nov 2010, Nov 2011
Speech Analysis
Guest Lecturer (Course instructor: James T. Heaton)
Gave annual three-hour lecture to 60 graduate students in the department of speech-language pathology.

MGH Institute of Health Professions Charlestown, MA Aug 2007–Jul 2010
Acoustic Phonetics
Guest Lecturer (Course instructor: Gregory P. Lof)
Gave annual four-hour lecture to 20–60 graduate students in the department of speech-language pathology.

Massachusetts Institute Technology Cambridge, MA Sep 2009–Dec 2009
Acoustics of Speech and Hearing
Teaching Assistant (Course instructors: John J. Rosowski, Louis D. Braida)
Led sections and held office hours for 6 doctoral students in speech and hearing sciences and affiliated fields.

SUPERVISED TRAINEES

Thomas Whittico, Master's student, MGH IHP 2018–Present
Research thesis advisor.

Katherine L. Marks Doctoral student, MGH IHP 2017–Present
Research advisor. First author on two conference proceedings.

Olivia M. Murton Doctoral student, Harvard DMS SHBT program 2016–Present
Research advisor. First author on one peer-reviewed paper and three conference proceedings.

Marc Maffei, MS Master's student, MGH IHP 2015–2016
Research thesis advisor. Co-author on one peer-reviewed paper and first author on one conference proceeding; Student research travel award recipient (highest-rated student-authored paper in its Convention topic area).

Salwa Masud Doctoral student, Harvard DMS SHBT program 2015
Research advisor. Research rotation.

Amanda S. Fryd, MS Master's student, MGH IHP 2014–2015
Research thesis advisor. First author on one peer-reviewed paper and co-author on one conference proceeding; Meritorious poster award at the Convention of the American Speech-Language-Hearing Association.

Hawazin Aljehani, MS Master's student, MGH IHP 2013–2014
Research thesis advisor. First author on one conference proceeding.

Jarrad H. Van Stan, PhD Doctoral student, MGH IHP 2012–2016
Research co-advisor. First and co-author on multiple papers and conference proceedings.

Melissa L. Cooke, MS Master's student, MGH IHP 2012–2014
Research thesis advisor. First author on one of two conference proceedings; Best poster award at Voice Foundation Symposium.

Shengran W. Feng Doctoral student, Harvard-MIT HST-SHBT program 2011–2013
Research advisor. Co-author on one peer-reviewed paper and two conference proceedings.

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LEADERSHIP AND COMMITTEE EXPERIENCE

- SHBT Academic Advising Committee** Advisor Aug 2018–Present
Selected to serve as academic advisor to assigned classes of the Harvard Division of Medical Sciences Program in Speech and Hearing Bioscience and Technology.
- SHBT Concentration Committee** Advisor Apr 2017–Present
Selected to serve as chair for the Voice and Signal Analysis Concentration Area in the Harvard Division of Medical Sciences Program in Speech and Hearing Bioscience and Technology.
- AQL Program Committee** Member Dec 2018–Jun 2019
Invited by General Chair to participate on a committee to review and organize research submissions for presentation at a joint meeting of the 13th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research (AQL).
- Voice Foundation Symposium** Special Session Chair Jun 2016
Invited to moderate a special session at the 45th Annual Symposium of The Voice Foundation: Care of the Professional Voice.
- ICVPB Scientific Committee** Member and Special Session Chair Apr 2015–Mar 2016
Invited by General Chair to participate on a committee to review and organize research submissions for presentation at the 10th International Conference on Voice Physiology and Biomechanics conference.
- AQL/OVS Scientific Committee** Member Dec 2014–Apr 2015
Invited by General Chair to participate on a committee to review and organize research submissions for presentation at a joint meeting of the 11th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research (AQL) and 4th International Occupational Voice Symposium (OVS).
- ASHA Voice, Resonance, and Alaryngeal Committee** Member Oct 2013–Nov 2014
Invited by ASHA to participate on a committee to review research submissions for presentation at the ASHA conference.
- ASHA Special Interest Division 3** Committee Member Sep 2010–May 2013
Chosen by the ASHA Voice Assessment Committee to aid in performing a systematic literature review of clinical voice assessment that culminated in a manuscript that provided guidelines for evidence-based voice research.
- SHBT Doctoral Recruiting Committee** Student Member Sep 2007–Feb 2010
During my term, the committee undertook an ambitious campaign to recruit students for and advertise the speech and hearing bioscience and technology doctoral program. I was primarily involved with organizing photographic material for print and web publishing.
- Voice Quality Study Group** Co-Founder Apr 2005–Nov 2009
Led a reading group that met biweekly at MIT to bring together students and faculty from engineering, speech science, and the clinic to discuss and host guest researchers in the broad area of voice quality analysis.
- SHBT Doctoral Admissions Committee** Student Member Sep 2007–May 2009
Selected to represent the student body on this committee to help screen, interview, and extend invitations to prospective doctoral candidates for the speech and hearing bioscience and technology doctoral program.
- MGH Voice Center Research Forum** Chair Dec 2007–Dec 2008
As one of several PhD students at the Voice Center, I spearheaded the creation of this biweekly seminar series and reading group that focused on research related to voice and speech disorders.

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SHBT Distinguished Lecture Series Committee Chair

Apr 2007–Apr 2008

As committee lead, I organized this student-led initiative in the speech and hearing program to invite researchers who are making a significant impact in the field of auditory and speech science to give semiannual seminars. During my term, we honored Christy Ludlow and Ray Kent.

CONSULTING

MIT Lincoln Laboratory Lexington, MA

Jan 2013–Present

Bioengineering Systems and Technology Group

Contact: Thomas F. Quatieri

Develop and apply advanced signal processing tools to investigate speech and voice biomarkers for characterizing patients with neurological disorders.

Universidad Técnica Federico Santa María Valparaíso, Chile

Jan 2013–Mar 2014

Voice Production Laboratory

Contact: Matías Zañartu

Provide guidance on developing laboratory applications of high-speed video and voice and speech signal processing.

Max Planck Institute for Evolutionary Anthropology Leipzig, Germany

Sep 2010

Department of Linguistics

Contact: Heriberto Avelino

Demonstrate high-speed videoendoscopy equipment for potential laboratory use.

PROFESSIONAL AFFILIATIONS

American Speech-Language-Hearing Association Member Without Certification

Nov 2013–Present

Acoustical Society of America Associate Member

Jan 2005–Present

Institute of Electrical and Electronics Engineers Member

Jan 2001–Present

SPIE–International Society for Optics and Photonics Early Career Professional Member

Jan 2012–Dec 2012

EDITORIAL ACTIVITIES

ASHA Perspectives in Speech Science

Feb 2016–Present

Invited by Editor to participate on the inaugural editorial board for ASHA Perspectives in Speech Science, a publication by the recently formed ASHA Special Interest Group 19 in Speech Science.

Ad Hoc Reviewer: Adv Otolaryngol, Am J Speech Lang Pathol, Ann Otol Rhinol Laryngol, Biomed Res Int, Biomed Signal Process Control, Clin Linguist Phon, Folia Phoniatr Logop, IEEE J Biomed Health Inform, IEEE Signal Process Lett, IEEE Trans Biomed Eng, J Acoust Soc Am, J Speech Lang Hear Res, J Voice, Med Biol Eng Comput, Med Princ Pract, PLoS ONE, Proc ICASSP, Proc INTERSPEECH, Speech Commun

PEER-REVIEWED PUBLICATIONS

Research Investigations

1. **Mehta DD**, Deliyski DD, Zeitels SM, Quatieri TF, Hillman RE. Voice production mechanisms following phonosurgical treatment of early glottic cancer. *Ann Otol Rhinol Laryngol* 2010;119(1):1–9. PMID: PMC2833294.
2. **Mehta DD**, Deliyski DD, Quatieri TF, Hillman RE. Automated measurement of vocal fold vibratory asymmetry from high-speed videoendoscopy recordings. *J Speech Lang Hear Res* 2011(1);44:47–54. PMID: PMC3558992.

3. Zañartu M, **Mehta DD**, Ho JC, Wodicka GR, Hillman RE. Observation and analysis of in vivo vocal fold tissue instabilities produced by nonlinear source-filter coupling: A case study. *J Acoust Soc Am* 2011;129(1):326–339. PMID: PMC3055289.
4. Karajanagi SS, Lopez-Guerra G, Park H, Kobler JB, Galindo M, Aanestad J, **Mehta DD**, Kumai Y, Giordano N, d'Almeida A, Heaton JT, Langer R, Herrera VLM, Faquin W, Hillman RE, Zeitels SM. Assessment of canine vocal fold function after injection of a new biomaterial designed to treat phonatory mucosal scarring. *Ann Otol Rhinol Laryngol* 2011;120(3):175–184. PMID: 21510143.
5. **Mehta DD**, Zañartu M, Quatieri TF, Deliyski DD, Hillman RE. Investigating acoustic correlates of human vocal fold vibratory phase asymmetry through modeling and laryngeal high-speed videoendoscopy. *J Acoust Soc Am* 2011;130(6):3999–4009. PMID: PMC3253599.
6. **Mehta DD**, Zeitels SM, Burns JA, Friedman AD, Deliyski DD, Hillman RE. High-speed videoendoscopic analysis of relationships between cepstral-based acoustic measures and voice production mechanisms in patients undergoing phonosurgery. *Ann Otol Rhinol Laryngol* 2012;121(5):341–347. PMID: PMC3756805.
7. **Mehta DD**, Rudoy D, Wolfe PJ. Kalman-based autoregressive moving average modeling and inference for formant and antiformant tracking. *J Acoust Soc Am* 2012;132(3):1732–1746. PMID: 22978900.
8. **Mehta DD**, Zañartu M, Feng SW, Cheyne HA, Hillman RE. Mobile voice health monitoring using a wearable accelerometer sensor and a smartphone platform. *IEEE Trans Biomed Eng* 2012;59(11):3090–3096. PMID: PMC3539821.
9. Zañartu M, Ho JC, **Mehta DD**, Hillman RE, Wodicka GR. Subglottal impedance-based inverse filtering of voiced sounds using neck surface acceleration. *IEEE/ACM Trans Audio Speech Lang Processing* 2013;21(9):1929–1939. PMID: PMC4229092.
10. Ghassemi M, Van Stan JH, **Mehta DD**, Zañartu M, Cheyne II HA, Hillman RE, Gutttag JV. Learning to detect vocal hyperfunction from ambulatory neck-surface acceleration features: Initial results for vocal fold nodules. *IEEE Trans Biomed Eng* 2014;61(6):1668–1675. PMID: PMC4077201.
11. **Mehta DD**, Wolfe PJ. Statistical properties of linear prediction analysis underlying the challenge of formant bandwidth estimation. *J Acoust Soc Am* 2015;137(2):944–950. PMID: PMC5392065.
12. Van Stan JH, **Mehta DD**, Hillman RE. The effect of voice ambulatory biofeedback on the daily performance and retention of a modified vocal motor behavior in participants with normal voices. *J Speech Lang Hear Res* 2015;58(3):713–721. PMID: PMC4492465.
13. Llico AF, Zañartu M, González AJ, Wodicka GR, **Mehta DD**, Van Stan JH, Hillman RE. Real-time estimation of aerodynamic features for ambulatory voice biofeedback. *J Acoust Soc Am* 2015;138(1):EL14–EL19. PMID: PMC4499052.
14. Van Stan JH, **Mehta DD**, Zeitels SM, Burns JA, Barbu AM, Hillman RE. Average ambulatory measures of sound pressure level, fundamental frequency, and vocal dose do not differ between adult females with phonotraumatic lesions and matched control subjects. *Ann Otol Rhinol Laryngol* 2015;124(11):864–874. PMID: PMC4605885.
15. Luegmair G, **Mehta DD**, Kobler JB, Döllinger M. Three-dimensional optical reconstruction of vocal fold kinematics using high-speed videomicroscopy with a laser projection system. *IEEE Trans Med Imaging* 2015;34(12):2572–2582. PMID: PMC4666755.
16. Lien YAS, Calabrese C, Michener CM, Heller Murray E, Van Stan JH, **Mehta DD**, Hillman RE, Noordzij JP, Stepp CE. Voice relative fundamental frequency via neck-skin acceleration in individuals with voice disorders. *J Speech Lang Hear Res* 2015;58(5):1482–1487. PMID: PMC4686308.
17. **Mehta DD**, Van Stan JH, Zañartu M, Ghassemi M, Gutttag JV, Espinoza VM, Cortés JP, Cheyne HA, Hillman RE. Using ambulatory voice monitoring to investigate common voice disorders: Research update. *Frontiers in Bioengineering and Biotechnology* 2015;3(155):1–14. PMID: PMC4607864.

18. **Mehta DD**, Van Stan JH, Hillman RE. Relationships between vocal function measures derived from an acoustic microphone and a subglottal neck-surface accelerometer. *IEEE/ACM Trans Audio Speech Lang Processing* 2016;24(4):659–668. PMID: PMC4607864.
19. Powell ME, Deliyski DD, Zeitels SM, Burns JA, Hillman RE, **Mehta DD**. Comparison of videostroboscopy to stroboscopy derived from high-speed videoendoscopy for evaluating patients with vocal fold mass lesions. *Am J Speech Lang Pathol* 2016;25(4):576–589. PMID: PMC5373695.
20. **Mehta DD**, Cheyne II HA, Wehner A, Heaton JT, Hillman RE. Accuracy of self-reported estimates of daily voice use in adults with normal and disordered voices. *J Speech Lang Hear Res* 2016;25(4):576–589. PMID: PMC5373697.
21. Fryd AS, Van Stan JH, Hillman RE, **Mehta DD**. Estimating subglottal pressure from neck-surface acceleration during normal voice production. *J Speech Lang Hear Res* 2016;59(6):1335–1345. PMID: PMC5399761.
22. Ghassemi M, Syed Z, **Mehta D**, Van Stan J, Hillman R, Gutttag J. Uncovering voice misuse using symbolic mismatch. *JMLR Workshop Conf Proc* 2016;56:239–252. PubMed Central – In Process.
23. Van Stan JH, **Mehta DD**, Petit R, Sternad D, Muise J, Burns JA, Hillman RE. Integration of motor learning principles into real-time ambulatory voice biofeedback and example implementation via a clinical case study with vocal fold nodules. *Am J Speech Lang Pathol* 2017;26(1):1–10. PMID: PMC5533549.
24. Van Stan JH, **Mehta DD**, Sternad D, Petit R, Hillman RE. Ambulatory voice biofeedback: Relative frequency and summary feedback effects on performance and retention of reduced vocal intensity in the daily lives of participants with normal voices. *J Speech Lang Hear Res* 2017;60(4):853–864. PMID: PMC5548081.
25. Heller Murray ES, Lien Y-AS, Van Stan JH, **Mehta DD**, Hillman RE, Pieter Noordzij J, Stepp CE. Relative fundamental frequency distinguishes between phonotraumatic and non-phonotraumatic vocal hyperfunction. *J Speech Lang Hear Res* 2017;60(6):1507–1515. PMID: PMC5544410.
26. Espinoza VM, Zañartu M, Van Stan JH, **Mehta DD**, Hillman RE. Glottal aerodynamic measures in adult females with phonotraumatic and nonphonotraumatic vocal hyperfunction. *J Speech Lang Hear Res* 2017;60(8): 2159–2169. PMID: PMC5829799.
27. Brockmann-Bausser M, Bohlender JE, **Mehta DD**. Acoustic perturbation measures improve with increasing vocal intensity in individuals with and without voice disorders. *J Voice* 2018;32(2):162–168. PMID: 28528786.
28. Chien Y-R, **Mehta DD**, Guðnason J, Zañartu M, Quatieri TF. Evaluation of glottal inverse filtering algorithms using a physiologically based articulatory speech synthesizer. *IEEE/ACM Trans Audio Speech Lang Processing* 2017;25(8):1718–1730. PubMed Central – In Process.
29. Van Stan JH, Maffei M, Masson MLV, **Mehta DD**, Burns JA, Hillman RE. Self-ratings of vocal status in daily life: Reliability and validity for patients with vocal hyperfunction and a normative group. *American Journal of Speech-Language Pathology* 2017;26(4):1167–1177. PMID: PMC5945061.
30. Lien Y-AS, Murray ESH, Calabrese CR, Michener CM, Van Stan JH, **Mehta DD**, Hillman RE, Noordzij JP, Stepp CE. Validation of an algorithm for semi-automated estimation of voice relative fundamental frequency. *Annals of Otology, Rhinology, and Laryngology* 2017;126(10):712–716. PMID: PMC6063362.
31. McKenna VS, Llico AF, **Mehta DD**, Perkell JS, Stepp CE. 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* 2017;60(12):3404–3416. PMID: PMC6111520.
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50. Maguluri G, Park J, Kobler JB, Iftimia N, **Mehta DD**. 4D laryngeal imaging by synchronously combining OCT with videostroboscopy. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2017.
51. Capobianco S, Ruggles R, Ortiz AJ, **Mehta DD**, Hillman RE, Van Stan JH. Automatic classification of speech and singing during ambulatory voice monitoring using a neck-placed accelerometer. Proceedings of La Voce Artistica 2017.
52. Murton O, Daher M, Cunningham T, Verkouw K, Tabtabai S, Steiner J, Hillman R, Dec GW, Ausiello D, **Mehta D**. Acoustic speech analysis of patients with decompensated heart failure: a pilot study. Proceedings of the Acoustical Society of America 2017; New Orleans, LA.
53. Whitfield JA, Gravelin A, Kriegel Z, **Mehta DD**. Duration of connected speech needed to accurately estimate the Articulatory-Acoustic Vowel Space of a reading passage. Proceedings of the Acoustical Society of America 2018; Minneapolis, MN.
54. Brockmann-Bauser M, Van Stan JH, Bohlender JE, **Mehta DD**. Acoustic-based cepstral peak prominence and spectral slope improve with increasing vocal intensity in women with and without voice disorders. Proceedings of the 12th Congress of the European Laryngological Society (ELS) 2018; London, England.
55. Brockmann-Bauser M, Van Stan JH, Bohlender JE, **Mehta DD**. Effect of vocal intensity on cepstral peak prominence and spectral slope in women with and without voice disorders. Proceedings of the Voice Foundation Symposium 2018; Philadelphia, PA.
56. Marks KL and **Mehta DD**. Impact of non-modal phonation on estimates of subglottal pressure from neck-surface acceleration in healthy speakers. Proceedings of the Voice Foundation Symposium 2018; Philadelphia, PA.
57. Van Stan JH, Capobianco S, Ruggles RK, Ortiz AJ, Toles LE, Marks KL, Hillman RE, **Mehta DD**. Ambulatory voice measures during singing and speech in patients with phonotraumatic vocal fold lesions compared to matched controls. Proceedings of the Voice Foundation Symposium 2018; Philadelphia, PA.

58. Ghasemzadeh H, Naghibolhosseini M, **Mehta DD**, Deliyski DD. Machine-learning approach for automatic detection of calibrated laser light in transnasal flexible high-speed videoendoscopy. Proceedings of the Voice Foundation Symposium 2018; Philadelphia, PA.
59. Deliyski D, **Mehta DD**, Zañartu M, Shishkov M, Bouma B, de Alarcón A, Ghasemzadeh H, Hillman RE. Laser-calibrated system for laryngeal transnasal flexible high-speed videoendoscopy. Proceedings of the Voice Foundation Symposium 2018; Philadelphia, PA.
60. Murton O, Daher M, Cunningham T, Verkouw K, Tabtabai S, Steiner J, Hillman R, Dec GW, Ausiello D, **Mehta D**. Acoustic speech analysis of patients with decompensated heart failure: A pilot study. Proceedings of Speech and Audio in the Northeast (SANE) 2018; Cambridge, MA.
61. Whitfield JA, Gravelin A, Kriegel Z, Mehta D. Duration of connected speech needed to accurately estimate the Articulatory-Acoustic Vowel Space of a reading passage. Proceedings of the Acoustical Society of America 2018; Minneapolis, MN.
62. Brockmann-Bauser M, Van Stan J, Bohlender JE, **Mehta DD**. Spectral acoustic measures improve with increasing vocal intensity. Proceedings of the 29th Congress of Union of the European Phoniaticians (UEP) 2018; Helsinki, Finland.
63. Quatieri T, Yu B, Perricone J, Nolan M, **Mehta D**, Lammert A, Palmer J. Energy and correlation analysis of gait and EEG representations during an auditory working memory task. Proceedings of the Conference on Movement and Cognition 2018; Boston, MA.
64. Espinoza VM, Van Stan JH, **Mehta DD**, Hillman RE, Zañartu M. Relationships between glottal airflow measures derived from oral airflow and neck-surface acceleration in subjects with phonotraumatic vocal hyperfunction. Proceedings of the 11th International Conference on Voice Physiology and Biomechanics 2018; East Lansing, MI.
65. **Mehta D**, Kobler J, Zeitels S, Hillman R. In vivo probe for tracking intraglottal pressure, vocal fold collision, and subglottal pressure during phonation. Proceedings of the 11th International Conference on Voice Physiology and Biomechanics 2018; East Lansing, MI.
66. **Mehta DD**, Van Stan JH, Hillman RE. Toward objective ambulatory measures of vocal status in patients with vocal hyperfunction. Proceedings of the 11th International Conference on Voice Physiology and Biomechanics 2018; East Lansing, MI.
67. Cortés JP, Espinoza VM, Ghassemi M, **Mehta DD**, Van Stan JH, Guttag JV, Hillman RE, Zañartu M. Aerodynamic features for ambulatory voice monitoring of phonotraumatic vocal hyperfunction. Proceedings of the 11th International Conference on Voice Physiology and Biomechanics 2018; East Lansing, MI.
68. Murton O, Rosas-Smith S, Choi J-Y, **Mehta D**, Shattuck-Hufnagel S. Toward the automatic detection of manually labeled irregular pitch periods. Proceedings of the Acoustical Society of America 2018; Victoria, British Columbia, Canada.
69. Toles L, Ortiz AJ, **Mehta DD**, Hillman RE, Van Stan JH. Speech and singing detection in ambulatory voice recordings in patients with phonotraumatic lesions and controls. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2018; Boston, MA.
70. Marks K, Lin JZ, **Mehta DD**. Estimating subglottal pressure from anterior neck-surface acceleration in patients with voice disorders. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2018; Boston, MA.
71. Maguluri G, **Mehta D**, Kobler J, Park J, Iftimia N. Optical biopsy of vocal folds during phonation using parallel OCT. Proceedings of SPIE Photonics West 2019; San Francisco, CA.
72. **Mehta DD**, Whittico TH, Ortiz AJ, Marks KL, Toles LE, Van Stan JH, Hillman RE. Investigating ambulatory Lombard effects during the daily life of patients with phonotraumatic vocal hyperfunction. Proceedings of the Occupational Voice Symposium 2019; London, UK.

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73. Van Stan JH, Stadelman-Cohn T, Muise J, Krusemark C, Ortiz AJ, **Mehta DD**, Burns JA, Hron TA, Hillman RE. Personalized ambulatory biofeedback for patients with vocal hyperfunction. Proceedings of the Occupational Voice Symposium 2019; London, UK.
74. Ghasemzadeh H, Ford DS, Deliyski DD, Kobler JB, Hillman RE, **Mehta DD**. Calibration method for laser-projection transnasal flexible high-speed videoendoscopy. Proceedings of the Voice Foundation Symposium 2019; Philadelphia, PA. Received Sataloff Award.
75. Deliyski DD, Ghasemzadeh H, Ford DS, **Mehta DD**, Shishkov M, Bouma BE, Kobler JB, Zanartu M, de Alarcon A, Hillman RE. Laser-projection system and method for 3D calibrated laryngeal measurements using transnasal flexible high-speed videoendoscopy. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2019.
76. **Mehta DD**, Kobler JB, Zañartu M, Erath BD, Motie-Shirazi M, Peterson SD, Petrillo RH, Hillman RE. Vocal fold collision pressure amplitude and timing in an excised hemilarynx setup with dual high-speed videoendoscopy. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2019.
77. Van Stan JH, Vangel M, **Mehta DD**, Ortiz AJ, Toles LE, Marks KL, Hillman RE. Differences in ambulatory vocal behavior between patients with phonotraumatic lesions and matched healthy controls. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2019.
78. Cortés JP, Alzamendi GA, Weinstein A, Yuz JI, Espinoza VM, **Mehta DD**, Van Stan JH, Hillman RE, Zañartu M. Uncertainty of ambulatory airflow estimates and its effect on the classification of phonotraumatic vocal hyperfunction. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2019.
79. MotieShirazi M, Peterson SD, Zañartu M, **Mehta DD**, Kobler JB, Hillman RE, Erath BD. Contact pressure and length as a function of posterior glottal area: Synthetic vocal fold investigations. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2019.
80. Lin JZ, Espinoza VM, Zañartu M, Marks KL, **Mehta DD**. Accelerometer-based prediction of subglottal pressure in healthy speakers producing non-modal phonation. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2019.
81. Espinoza VM, **Mehta DD**, Van Stan JH, Hillman RE, Zañartu M. Comparing accelerometer and oral airflow based aerodynamic measures in patients with vocal hyperfunction. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2019.

PATENTS

1. Zañartu M, Ho JC, **Mehta DD**, Wodicka GR, Hillman RE. System and methods for evaluating vocal function using an impedance-based inverse filtering of neck surface acceleration. US Publication Number US20140066724 A1. Published March 6, 2014.
2. Quatieri TF, Williamson JR, Helfer B, Horwitz-Martin RL, Yu B, **Mehta DD**. Using correlation structure of speech dynamics to detect neurological changes. US Publication Number US20150112232 A1. Published April 23, 2015.

INVITED PRESENTATIONS

Regional

Smartphone-based ambulatory monitoring of vocal function to improve voice disorder assessment

Boston, MA

Sep 2017

Invited by John Kane

For the Signals Group at Cogito Corporation

Toward detection of voice disorders using a smartphone platform Cambridge, MA

Jun 2013

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- Invited by Lorin Wilde
For the New England Chapter of the Applied Voice Input/Output Society (AVIOS)
- Seeing the human voice from the inside* Cambridge, MA Mar 2013
Invited by John V. Guttag
For the Medical Vision Group at the Computer Science and Artificial Intelligence lab,
Massachusetts Institute of Technology
- Impact of human vocal fold vibratory asymmetries on acoustic characteristics of vowel
phonation* Boston, MA Dec 2010
Invited by Gerald Kidd
For Speech, Language, and Hearing Sciences Seminar Series, Sargent College, Boston University
- Human vocal folds in action* Natick, MA Jul 2009
Invited by image processing group
Seminar to engineers and computer scientists at The MathWorks, Natick, MA
- Do you see what I'm saying? Visualizing the voice* Cambridge, MA Mar 2008
Invited by Patrick J. Wolfe
For master's-level and doctoral students in the Statistics and Information Sciences Laboratory,
Harvard University
- Graduate student perspectives* Cambridge, MA Nov 2007
Invited by Mya Poe
Seminar for doctoral students in the Harvard-MIT Division of Health Sciences and Technology
- National**
- Validating vocal fold contact pressure measurement using excised human larynx models* May 2019
Philadelphia, PA
Invited by Matías Zañartu
Voice Foundation Symposium
- Toward objective ambulatory measures of vocal status in patients with vocal hyperfunction* Apr 2018
East Lansing, MI
Invited by Eric Hunter
11th ICVPB Pre-Conference Symposium on Vocal Effort, Vocal Fatigue, and Vocal Load: What,
How and Where
- Ambulatory monitoring of voice* Phoenix, AZ Apr 2018
Invited by David Lott
Southwest Laryngology Conference: Focus on Complex Cases, Mayo Clinic
- Smartphone-based ambulatory monitoring of vocal function* Evanston, IL Apr 2017
Invited by Aaron Friedman
Short course on Current Concepts in Laryngeal Surgery and Voice Rehabilitation, University of
Chicago and NorthShore University Health System
- Enhancing clinical voice assessment with smartphone-based ambulatory voice monitoring* Dec 2015
Evanston, IL
Invited by Sumitrajit Dhar
Roxelyn and Richard Pepper Department of Communication Sciences and Disorders, Northwestern
University
- Imaging the mucosal wave during voice production* Cincinnati, OH Jun 2013
Invited by Dimitar Deliyski
AQL Workshop course at 10th International Conference on Advances in Quantitative Laryngology
- Laryngeal videostroboscopy: Full exposure* Cincinnati, OH Jun 2013

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- Invited by Dimitar Deliyski
AQL Workshop course at 10th International Conference on Advances in Quantitative Laryngology
- Parametric speech production representations for formant tracking and joint source-filter modeling* Mar 2012
Portland, OR
- Invited by Jan van Santen
Center for Spoken Language Understanding, Oregon Health and Science University
- Parametric speech production representations for formant tracking and joint source-filter modeling* Jan 2012
Los Angeles, CA
- Invited by Shrikanth Narayanan
Viterbi School of Engineering, University of Southern California
- Parametric speech production representations for formant tracking and joint source-filter modeling* Nov 2011
Seattle, WA
- Invited by Les E. Atlas
Department of Electrical Engineering, University of Washington
- Use of laryngeal high-speed videoendoscopy systems to study voice production mechanisms in human subjects* Nov 2011
Sacramento, CA
- Invited by Julie Barkmeier-Kraemer
Grand Rounds talk at the Center for Voice and Swallowing, University of California Davis Medical Center
- Advances in clinical voice assessment* Los Angeles, CA Nov 2011
- Invited by Abeer Alwan
Electrical Engineering Department, University of California Los Angeles
- International**
- A speech-language pathologist and an engineer walk into a pub: Interdisciplinary research in occupational voice disorders* London, UK Mar 2019
- Invited by Ruth Epstein
6th Occupational Voice Symposium, University College London
- Use of laryngeal high-speed videoendoscopy systems to study voice production mechanisms in human subjects* Taipei, Taiwan Oct 2017
- ENT Department, Taipei Veterans General Hospital
- Real-world ambulatory monitoring of vocal behavior* Stockholm, Sweden Aug 2017
- Accepted 3-hour conference tutorial
INTERSPEECH conference
- Update on use of technology for occupational voice* London, UK Mar 2017
- Invited by Ruth Epstein
5th Occupational Voice Symposium, University College London
- Smartphone-based ambulatory monitoring of vocal function to improve voice disorder assessment* Jul 2016
Gandhinagar, India
- Invited by Hemant Patil
Dhirubhai Ambani Institute of Information and Communication Technology
- Toward detection of voice disorders using a smartphone platform* Valparaíso, Chile Mar 2014
- Invited by Matías Zañartu
Universidad Técnica Federico Santa María
- Current research directions in high-speed videoendoscopy and ambulatory voice monitoring* May 2013
Erlangen, Germany
- Invited by Michael Döllinger

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ENT Clinic, University Hospital Erlangen

Recent advances in laryngeal high-speed videoendoscopy Valparaíso, Chile Jan 2013
Invited by Matías Zañartu
Universidad Técnica Federico Santa María

Vocal fold vibratory asymmetry and its acoustic effects Atsugi, Kanagawa, Japan Jul 2011
Invited by Sadao Hiroya
Communication Sciences Laboratories, Nippon Telegraph and Telephone (NTT) Corporation

Vocal fold vibratory asymmetry and its acoustic effects Olomouc, Czech Republic May 2011
Invited by Jan Švec
Palacký University

High-speed imaging of the human voice Leipzig, Germany Oct 2010
Invited by Heriberto Avelino
Max Planck Institute for Evolutionary Anthropology

Acoustic correlates of human vocal fold vibratory characteristics Erlangen, Germany Oct 2010
Invited by Dimitar Deliyski
COST 2103 Workshop course on Advances in Vocal Function Assessment

SERVICE TO COMMUNITY

Chaplains at MIT Cambridge, MA Sep 2011–Present
Serve as Zoroastrian chaplain on campus to foster student life and interfaith engagement.

Harvard Chaplains Cambridge, MA Oct 2010–Present
Serve as Zoroastrian chaplain on campus to foster student life and interfaith engagement.

Science by the Pint Seminar Series Somerville, MA Sep 2017
Gave presentation to the public on voice health and methods for imaging. Seminar series organized by graduate students to invite scientists to interact with the community.

Longwood Symphony Orchestra Boston, MA May 2009
Performed clarinet in a concert benefiting the Albert Schweitzer Fellowship that supports emerging professionals addressing health disparities in the US and Africa.

Performed clarinet in a chamber music group at an assisted living and long-term care facility for “LSO on Call: Health and Harmony in the City.” Oct 2009