

# DARYUSH D. MEHTA

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## CURRENT APPOINTMENTS

- Massachusetts General Hospital** Boston, MA  
Research Staff (Assistant Investigator), Center for Laryngeal Surgery & Voice Rehabilitation Oct 2011–Present  
Director, Voice Science and Technology Laboratory Apr 2017–Present
- Harvard Medical School** Boston, MA  
Assistant Professor of Surgery, Department of Surgery Jan 2017–Present  
Affiliated Faculty, Program in Speech and Hearing Bioscience and Technology 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 Mar 2010–Sep 2011  
Advisor: Robert E. Hillman
- Harvard University** Cambridge, MA  
Electrical Engineering, School of Engineering and Applied Sciences Mar 2010–Aug 2011  
Advisor: Patrick J. Wolfe

## EDUCATION

- Massachusetts Institute of Technology** Cambridge, MA  
Doctor of Philosophy in Speech and Hearing Bioscience and Technology Feb 2010  
Harvard–MIT Division of Health Sciences and Technology  
Thesis: *Impact of human vocal fold vibratory asymmetries on acoustic characteristics of sustained vowel phonation*  
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
- Massachusetts Institute of Technology** Cambridge, MA  
Master of Science in Electrical Engineering and Computer Science Feb 2006  
MIT Lincoln Laboratory  
Thesis: *Aspiration noise during phonation: Synthesis, analysis, and pitch-scale modification*

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Advisor: Thomas F. Quatieri

**University of Florida** Gainesville, FL

Aug 2003

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

## FUNDED PROJECTS

### **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.

### **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.

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## **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.

## **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

### **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

### **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), 22<sup>nd</sup> 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)

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- Best Entry for the Depression Recognition Sub-Challenge** Barcelona, Spain Oct 2013  
Third International Audio/Visual Emotion Challenge (AVEC 2013), 21<sup>st</sup> 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

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## *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.

## **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. Braid)

Led sections and held office hours for 6 doctoral students in speech and hearing sciences and affiliated fields.

## SUPERVISED TRAINEES

**Katherine L. Marks** Doctoral student, MGH IHP

2017–Present

Research advisor. First author on two conference proceedings.

**Olivia M. Murton** Doctoral student, Harvard DMS SGBT program

2016–Present

Research advisor. First author on one peer-reviewed paper and three conference proceedings.

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<b>Marc Maffei, MS</b> Master's student, MGH IHP 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).	2015–2016
<b>Salwa Masud</b> Doctoral student, Harvard DMS SHBT program Research advisor. Research rotation.	2015
<b>Amanda S. Fryd, MS</b> Master's student, MGH IHP 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.	2014–2015
<b>Hawazin Aljehani, MS</b> Master's student, MGH IHP Research thesis advisor. First author on one conference proceeding.	2013–2014
<b>Jarrad H. Van Stan, PhD</b> Doctoral student, MGH IHP Research co-advisor. First and co-author on multiple papers and conference proceedings.	2012–2016
<b>Melissa L. Cooke, MS</b> Master's student, MGH IHP Research thesis advisor. First author on one of two conference proceedings; Best poster award at Voice Foundation Symposium.	2012–2014
<b>Shengran W. Feng</b> Doctoral student, Harvard-MIT HST-SHBT program Research advisor. Co-author on one peer-reviewed paper and two conference proceedings.	2011–2013

## LEADERSHIP AND COMMITTEE EXPERIENCE

<b>Voice Foundation Symposium</b> Special Session Chair Invited to moderate a special session at the 45th Annual Symposium of The Voice Foundation: Care of the Professional Voice.	Jun 2016
<b>ICVPB Scientific Committee</b> Member and Special Session Chair Invited by General Chair to participate on a committee to review and organize research submissions for presentation at the 10 <sup>th</sup> International Conference on Voice Physiology and Biomechanics conference.	Apr 2015–Mar 2016
<b>AQL/OVS Scientific Committee</b> Member Invited by General Chair to participate on a committee to review and organize research submissions for presentation at a joint meeting of the 11 <sup>th</sup> International Conference on Advances in Quantitative Laryngology, Voice and Speech Research (AQL) and 4 <sup>th</sup> International Occupational Voice Symposium (OVS).	Dec 2014–Apr 2015
<b>ASHA Voice, Resonance, and Alaryngeal Committee</b> Member Invited by ASHA to participate on a committee to review research submissions for presentation at the ASHA conference.	Oct 2013–Nov 2014
<b>ASHA Special Interest Division 3</b> Committee Member 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.	Sep 2010–May 2013
<b>SHBT Doctoral Recruiting Committee</b> Student Member 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.	Sep 2007–Feb 2010

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**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.

**SGBT 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.

**SGBT 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 phonomicrosurgery. *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, Guttag 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: 25698026.
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, Guttag 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, Guttag 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. PubMed Central – In Process.
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. PubMed Central – In Process.
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. PubMed Central – In Process.
26. Espinoza VM, Zañartu M, Van Stan JH, **Mehta DD**, Hillman RE. Glottal aerodynamic measures in adult females with phonotraumatic and non-phonotraumatic vocal hyperfunction. *J Speech Lang Hear Res* 2017;60(8): 2159–2169. PubMed Central – In Process.
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. PubMed Central – In Process.

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. PubMed Central – In Process.
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. PubMed Central – In Process.
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. PubMed Central – In Process.
32. Van Stan JH, Park S-W, Jarvis M, **Mehta DD**, Hillman RE, Sternad D. Measuring vocal motor skill with a virtual voice-controlled slingshot. *The Journal of the Acoustical Society of America* 2017;142(3):1199–1212. PubMed Central – In Process.
33. Borsky M, **Mehta DD**, Van Stan JH, Guðnason J. Modal and non-modal voice quality classification using acoustic and electroglottographic features. *IEEE/ACM Transactions on Audio, Speech, and Language Processing* 2017;25(12):2281–2291. PubMed Central – In Process.
34. Murton OM, Semigran M, Daher M, Cunningham T, Verkouw K, Tabbai S, Steiner J, Hillman RE, Dec GW, Ausiello D, **Mehta DD**. Acoustic speech analysis of patients with decompensated heart failure: A pilot study. *The Journal of the Acoustical Society of America* 2017;142(4):EL401–EL407. PMID: PMC5724620.

### Other Peer-Reviewed Publications

1. **Mehta D**, Quatieri, TF. Synthesis, analysis, and pitch modification of the breathy vowel. *Proceedings of the IEEE Workshop on Applications of Signal Processing to Audio and Acoustics* 2005; New Paltz, NY:199–202.
2. **Mehta D**, Quatieri TF. Pitch-scaled modification using the modulated aspiration noise source. *Proceedings of INTERSPEECH: International Conference on Spoken Language Processing* 2006; Pittsburgh, PA:2490–2493.
3. Lulich SM, Zañartu M, **Mehta DD**, Hillman RE. Source-filter interaction in the opposite direction: Subglottal coupling and the influence of vocal fold mechanics on vowel spectra during the closed phase. *Proceedings of Meetings on Acoustics* 2009;6(060007):1–14.
4. **Mehta DD**, Deliyski DD, Hillman RE. Commentary on why laryngeal stroboscopy really works: Clarifying misconceptions surrounding Talbot’s law and the persistence of vision. *J Speech Lang Hear Res* 2010;53(5):1263–1267. PMID: PMC3553579.
5. Doellinger M, Kobler JB, Berry DA, **Mehta DD**, Luegmair G, Bohr C. Experiments on analysing voice production: Excised (human, animal) and in vivo (animal) approaches. *Current Bioinformatics* 2011;6(3):286–304.
6. Roy N, Barkmeier-Kraemer J, Eadie T, Sivasankar MP, **Mehta D**, Paul D, Hillman RE. Evidence-based clinical voice assessment: A systematic review. *Am J Speech Lang Pathol* 2013;22:212–226. PMID: 23184134.
7. **Mehta DD**, Woodbury Listfield R, Cheyne HA, Heaton JT, Feng SW, Zañartu M, Hillman RE. Duration of ambulatory monitoring needed to accurately estimate voice use. *Proceedings of InterSpeech: Annual Conference of the International Speech Communication Association* 2012; Portland, OR:4 pages.
8. **Mehta DD**, Zañartu M, Van Stan, J, Feng SW, Cheyne HA, Hillman RE. Smartphone-based detection of voice disorders by long-term monitoring of neck acceleration features. *Proceedings of the 10th Annual Body Sensor Networks Conference* 2013; Cambridge, MA:6 pages.

9. Helfer BS, Quatieri TF, Williamson JR, **Mehta DD**, Horwitz R, Yu B. Classification of depression state based on articulatory precision. Proceedings of Interspeech: 14th Annual Conference of the International Speech Communication Association 2013; Lyon, France:5 pages.
10. Williamson JR, Quatieri TF, Helfer BS, Horwitz R, Yu B, **Mehta DD**. Vocal biomarkers of depression based on motor incoordination. Proceedings of Third International Audio/Visual Emotion Challenge (AVEC 2013), 21st ACM International Conference on Multimedia 2013; Barcelona, Spain:7 pages. Best Entry for the Depression Recognition Sub-Challenge.
11. Guðnason J, **Mehta DD**, Quatieri TF. Closed phase estimation for inverse filtering the oral airflow waveform. Proceedings of the International Conference on Acoustics, Speech, and Signal Processing 2014; Florence, Italy:4 pages.
12. Williamson JR, Quatieri TF, Helfer BS, Ciccarelli G, **Mehta DD**. Vocal and facial biomarkers of depression based on motor incoordination and timing. Proceedings of the Fourth International Audio/Visual Emotion Challenge (AVEC 2014), 22nd ACM International Conference on Multimedia 2014; Orlando, FL:65–72. Best Entry for the Depression Recognition Sub-Challenge.
13. Deliyiski DD, Hillman RE, **Mehta DD**. Laryngeal high-speed videoendoscopy—Rationale and recommendation for accurate and consistent terminology. J Speech Lang Hear Res 2015;58(5):1488–1492. PMID: PMC4686309.
14. Guðnason J, **Mehta DD**, Quatieri TF. Evaluation of speech inverse filtering techniques using a physiologically based synthesizer. Proceedings of the International Conference on Acoustics, Speech, and Signal Processing 2015; Brisbane, Australia:5 pages.
15. Williamson JR, Quatieri TF, Helfer BS, Perricone J, Ghosh SS, Ciccarelli G, **Mehta DD**. Segment-dependent dynamics in predicting Parkinson’s disease. Proceedings of INTERSPEECH 2015; Dresden, Germany:5 pages.
16. Quatieri TF, Williamson JR, Smalt CJ, Patel T, Perricone J, **Mehta DD**, Helfer BS, Ciccarelli G, Ricke D, Malyska N, Palmer J, Heaton K, Eddy M, Moran J. Vocal biomarkers to discriminate cognitive load in a working memory task. Proceedings of INTERSPEECH 2015; Dresden, Germany:5 pages.
17. Horwitz-Martin R, Quatieri T, Lammert A, Williamson J, Yunusova Y, Godoy E, **Mehta D**, Green J. Relation of automatically extracted formant trajectories with intelligibility loss and speaking rate decline in amyotrophic lateral sclerosis. Proceedings of INTERSPEECH 2016; San Francisco, CA:5 pages.
18. Borsky M, **Mehta DD**, Gudjohnsen JP, Gudnason J. Classification of voice modality using electroglottogram waveforms. Proceedings of INTERSPEECH 2016; San Francisco, CA:5 pages.
19. Borsky M, Cocude M, **Mehta DD**, Zañartu M, Gudnason J. Classification of voice modes using neck-surface accelerometer data. Proceedings of the International Conference on Acoustics, Speech, and Signal Processing 2017; New Orleans, LA:5 pages.
20. **Mehta DD**, Chwalek PC, Quatieri TF, Brattain LJ. Wireless neck-surface accelerometer and microphone on flex circuit with application to noise-robust monitoring of Lombard speech. Proceedings of INTERSPEECH 2017:5 pages.
21. Chwalek PC, **Mehta DD**, Welsh B, Wooten C, Byrd K, Froelich E, Mauer D, Lacirignola J, Quatieri TF, Brattain LJ. Lightweight, on-body, wireless system for ambulatory voice and ambient noise monitoring. Proceedings of the 15th International Conference on Wearable and Implantable Body Sensor Networks 2018; Cambridge, MA:5 pages.

### REVIEWS, CHAPTERS, MONOGRAPHS, AND EDITORIALS

1. **Mehta D**, Hillman, RE. Use of aerodynamic measures in clinical voice assessment. Perspectives on Voice and Voice Disorders 2007;17(3):14–18.
2. **Mehta DD**, Hillman RE. Voice assessment: Updates on perceptual, acoustic, aerodynamic, and endoscopic imaging methods. Current Opinion in Otolaryngology & Head and Neck Surgery 2008;16(3):211–215. PMID: PMC3775647.

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3. Hillman RE, **Mehta DD**. “The science of stroboscopic imaging.” K. Kendall and R Leonard, eds. *Laryngeal Evaluation: Indirect Laryngoscopy to High-Speed Digital Imaging*. New York: Thieme Medical Publishers, Inc. 2010:101–109.
4. Hillman RE, **Mehta DD**. Ambulatory monitoring of daily voice use. *Perspectives on Voice and Voice Disorders* 2011;21(2):56–61.
5. **Mehta DD**, Hillman RE. The evolution of methods for imaging vocal fold phonatory function. *Perspectives on Speech Science and Orofacial Disorders* 2012;22(1):5–13.
6. **Mehta DD**, Hillman RE. Current role of stroboscopy in laryngeal imaging. *Current Opinion in Otolaryngology & Head and Neck Surgery* 2012;20(6):429–436. PMID: PMC3747974.
7. **Mehta DD**, Deliyski DD, Zeitels SM, Zañartu M, Hillman, RE. “Integration of transnasal fiberoptic high-speed videoendoscopy with time-synchronized recordings of vocal function.” K. Izdebski, Y. Yan, and R. Patel, eds. *Normal & Abnormal Vocal Folds Kinematics: High Speed Digital Phonoscopy (HSDP), Optical Coherence Tomography (OCT) & Narrow Band Imaging (NBI®)*, Volume I: Technology. San Francisco: Pacific Voice & Speech Foundation 2015:105–114.
8. Van Stan JH, **Mehta DD**, Hillman RE. Recent innovations in voice assessment expected to impact the clinical management of voice disorders. *Perspectives of the ASHA Special Interest Groups* 2017;1(SIG 3):4–13.
9. Quatieri TF, Williamson JR, Smalt CJ, Perricone J, Patel T, Brattain L, Helfer B, **Mehta D**, Palmer J, Heaton K, Eddy M, and Moran J, “Multimodal biomarkers to discriminate cognitive state” Chapter in: R. L. Kane and T. D. Parsons (Eds.), *The Role of Technology in Clinical Neuropsychology*. New York, NY: Oxford University Press 2017:409–443.

### CONFERENCE PROCEEDINGS (NON-PEER REVIEWED)

1. **Mehta DD**, Rudoy D, Wolfe PJ. Joint source-filter modeling using flexible basis functions. *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing* 2011; Prague, Czech Republic:5888–5891.
2. **Mehta DD**, Luegmair G, Kobler JB, Hillman RE, Young AA, Cooke ML, Döllinger M. High-speed videomicroscopy and acoustic analysis of ex vivo vocal fold vibratory asymmetry. *Proceedings of the 10th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research* 2013; Cincinnati, OH:2 pages.
3. Hillman RE, Van Stan JH, **Mehta DD**, Zañartu M, Ghassemi M, Cheyne HA, Guttag JV. Future directions in the development of ambulatory monitoring for clinical voice assessment. *Proceedings of the 10th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research* 2013; Cincinnati, OH:2 pages.
4. Llico AF, Zañartu M, **Mehta DD**, Van Stan JH, Cheyne II HA, González AJ, Ghassemi M, Wodicka GR, Guttag JV, Hillman RE. Incorporating real-time biofeedback capabilities into a voice health monitor. *Proceedings of the 8th International Workshop on Models and Analysis of Vocal Emissions for Biomedical Applications* 2013; Firenze, Italy:3 pages.
5. Zañartu M, Espinoza V, **Mehta DD**, Van Stan JH, Cheyne II HA, Ghassemi M, Guttag JV, Hillman RE. Toward an objective aerodynamic assessment of vocal hyperfunction using a voice health monitor. *Proceedings of the 8th International Workshop on Models and Analysis of Vocal Emissions for Biomedical Applications* 2013; Firenze, Italy:3 pages.
6. Maguluri G, Chang E, Ifimia N, **Mehta D**, Kobler J. Dynamic vocal fold imaging by integrating optical coherence tomography with laryngeal high-speed video endoscopy. *Proceedings of CLEO: Laser Science to Photonic Applications* 2015; San Diego, CA:2 pages.
7. Whitfield JA, **Mehta DD**, Walsh C. Examining the effect of Parkinson disease on clear speech using utterance-level vowel space metrics. *Proceedings of the Conference on Motor Speech* 2018; Savannah, GA:2 pages.

8. Whitfield JA, Kriegel Z, Natal M, Fullenkamp AM, **Mehta DD**, Gravelin A. Examining the effect of Parkinson disease on clear speech using utterance-level vowel space metrics. Proceedings of the Conference on Motor Speech 2018; Savannah, GA:2 pages.
9. Cortés JP, Espinoza VM, Ghassemi M, Mehta DD, Van Stan JH, Hillman RE, Guttag JV, Zañartu M. Aerodynamic features and their uncertainty for the ambulatory assessment of phonotraumatic vocal hyperfunction. Proceedings of the IEEE Conference on Biomedical and Health Informatics 2018; Las Vegas, NV:1 page.

### ABSTRACTS, POSTERS, PRESENTATIONS

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2. **Mehta D**, Hillman RE, Quatieri TF. High-speed color videoendoscopy of human voice production. Harvard-MIT Division of Health Sciences and Technology Forum 2007; Cambridge, MA.
3. **Mehta D**, Deliyski D, Quatieri TF, Zeitels SM, Hillman RE. Ultra high-speed color videoendoscopy of human voice production. Proceedings of the American Speech-Language-Hearing Association Convention 2007; Boston, MA.
4. **Mehta DD**, Deliyski DD, Zeitels SM, Zañartu M, Hillman RE. Integration of ultra high-speed color videoendoscopy with time-synchronized measures of vocal function. Proceedings of The Eastern Section of the Triological Society 2009; Boston, MA. First Place Poster Award in Laryngology/Bronchoesophagology.
5. Zañartu M, Ho JC, **Mehta DD**, Hillman RE, Wodicka GR. An impedance-based inverse filtering scheme with glottal coupling. Proceedings of The Acoustical Society of America 2009; Portland, OR. Best Student Paper in Speech Communication.
6. Karajanagi SS, Lopez-Guerra G, Park H, Kobler JB, **Mehta DD**, Kumai Y, Heaton JT, Herrera VLM, Hillman RE, Zeitels SM. Assessment of canine vocal fold function after injection of a new biomaterial designed to treat phonatory mucosal scarring. Proceedings of the American Broncho-Esophagological Association 2010; Las Vegas, NV. Broyles-Maloney Award (outstanding manuscript).
7. **Mehta DD**, Zañartu M, Deliyski DD, Hillman RE. Acoustic correlates of human vocal fold vibratory phase asymmetry through modeling and laryngeal high-speed videoendoscopy. Proceedings of the 9<sup>th</sup> International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2010; Erlangen, Germany.
8. 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 a new biomaterial designed to restore pliability to scarred vocal folds. Proceedings of the American Chemical Society 2011; Anaheim, CA.
9. **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 phonomicrosurgery. Proceedings of the American Laryngological Association 2011; Chicago, IL.
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11. **Mehta DD**. Role of the mucosal wave in voice production. Joint Meeting of the Pacific Voice Conference and SPIE, Volume 8207C 2012; San Francisco, CA.
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13. Zaňartu M, **Mehta DD**, Wodicka GR, Hillman RE. Subglottal impedance-based inverse filtering for the ambulatory monitoring of vocal function: Initial results. Proceedings of the International Conference on Voice Physiology and Biomechanics 2012; Erlangen, Germany.
14. Ghassemi M, Shih E, **Mehta DD**, Feng S, Van Stan J, Hillman R, Gutttag J. Detecting voice modes for vocal hyperfunction prevention. Proceedings of the 7th Annual Workshop for Women in Machine Learning 2012; Lake Tahoe, NV.
15. Zaňartu M, Ho JC, **Mehta DD**, Hillman RE, Wodicka GR. Acoustic coupling during incomplete glottal closure and its effects on the inverse filtering of oral airflow. Proceedings of The Acoustical Society of America 2013; Montreal, Quebec.
16. Luegmair G, **Mehta DD**, Kobler JB, Döllinger M. Three-dimensional surface reconstruction of ex vivo vocal fold vibration using laser-grid projection during high-speed imaging. Proceedings of the International Conference on Voice Physiology and Biomechanics 2014; Salt Lake City, UT.
17. Döllinger M, **Mehta DD**, Kobler JB, Luegmair G. Correlations between dynamic 3D parameters and acoustics in ex vivo human vocal fold vibration. Proceedings of the International Conference on Voice Physiology and Biomechanics 2014; Salt Lake City, UT.
18. **Mehta DD**, Van Stan JH, Hillman RE. Deriving acoustic voice quality measures from subglottal neck-surface acceleration. Proceedings of the International Conference on Voice Physiology and Biomechanics 2014; Salt Lake City, UT.
19. Golla Powell ME, Deliyski DD, **Mehta DD**, Hillman RE. Comparison of vocal-fold vibratory features visualized via videostroboscopy, high-speed videoendoscopy, and stroboscopic simulation derived from high-speed videoendoscopy. Proceedings of the International Conference on Voice Physiology and Biomechanics 2014; Salt Lake City, UT.
20. Cooke ML, **Mehta DD**, Hillman RE. Relationships between perceptually derived acoustic voice measures and vocal fold phonatory function. Proceedings of the Voice Foundation Symposium 2014; Philadelphia, PA. David W. Brewer Award for Best Poster.
21. Döllinger M, **Mehta DD**, Kobler JB, Luegmair G. Correlations between dynamic 3D parameters and acoustics in a human ex vivo model of asymmetric vocal fold vibration. Proceedings of the Voice Foundation Symposium 2014; Philadelphia, PA.
22. Döllinger M, **Mehta DD**, Kobler JB, Luegmair G. Reconstruction of three dimensional vocal fold dynamics and correlations with the acoustical outcome demonstrated in an ex vivo model. Proceedings of the XXVIIIth Congress of Union of the European Phoniaticians (UEP) 2014; Moscow, Russia.
23. Hillman RE, **Mehta DD**, Van Stan JH, Zaňartu M, Ghassemi M, Gutttag JV. Subglottal ambulatory monitoring of vocal function to improve voice disorder assessment. Proceedings of The Acoustical Society of America 2014; Indianapolis, IN.
24. Van Stan JH, **Mehta DD**, Hillman RE. Effect of ambulatory biofeedback on vocal motor behavior in daily life: A pilot study. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2014; Orlando, FL.
25. Lien Y-A, Michener C, Van Stan J, **Mehta D**, Hillman R, Stepp C. Relative fundamental frequency estimation via neck skin acceleration in healthy and disordered voices. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2014; Orlando, FL.
26. Golla Powell M, Deliyski D, **Mehta D**, Hillman R. Validation of stroboscopy derived from high-speed videoendoscopy. Proceedings of the 11th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2015; London, England.

27. Lien Y-A S, Calabrese C, Michener CM, Murray EH, Van Stan J, **Mehta DD**, Hillman RE, Noordzij JP, Stepp CE. Automated algorithms for estimation of relative fundamental frequency in individuals with and without voice disorders. Proceedings of the 11th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2015; London, England.
28. Van Stan JH, Jarvis MT, Park S-W, Sternad D, **Mehta DD**, Hillman RE. Development of a two-dimensional virtual environment to study variability in vocal motor learning. Proceedings of the 11th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2015; London, England.
29. Van Stan JH, **Mehta DD**, Hillman RE. The development of flexible ambulatory biofeedback schedules for vocal motor learning. Proceedings of the 4th International Occupational Voice Symposium 2015; London, England.
30. Van Stan JH, **Mehta DD**, Zeitels SM, Burns JA, Barbu AM, Hillman RE. (2015). 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. Proceedings of the American Broncho-Esophagological Association 2015; Boston, MA.
31. Aljehani H, Van Stan JH, Haynes CW, **Mehta DD**. Ambulatory voice monitoring of a Muslim imam during Ramadan. Proceedings of the Voice Foundation Symposium 2015; Philadelphia, PA.
32. Golla Powell M, Deliyski D, **Mehta D**, Hillman R. Comparison of videostroboscopy to stroboscopy derived from high-speed videoendoscopy for evaluating patients with vocal fold mass lesions. Proceedings of the Voice Foundation Symposium 2015; Philadelphia, PA.
33. Quatieri TF, Williamson JR, Smalt CJ, Helfer BS, Patel T, Perricone J, Ciccarelli G, **Mehta DD**, Ricke D, Malyska N, Palmer J, Heaton K, Eddy M, Moran J. Comparison of vocal and EEG biomarkers to discriminate cognitive load in a working memory task. Proceedings of the 12th Annual Body Sensor Networks Conference 2015; Cambridge, MA.
34. Cooke ML, Hillman RE, **Mehta DD**. Relationships Between the Cepstral/Spectral Index of Dysphonia and Vocal Fold Vibratory Function During Phonation. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2015; Denver, CO.
35. Fryd AS, Van Stan JH, Hillman RE, **Mehta DD**. Estimating subglottal pressure during phonation with a neck-surface accelerometer sensor. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2015; Denver, CO. Award for Meritorious Poster Submission.
36. Lien YAS, Calabrese C, Michener CM, Heller Murray E, Van Stan, JH, **Mehta DD**, Hillman RE, Noordzij JP, Stepp CE. Automated algorithms for voice relative fundamental frequency: Use, validation, and applications. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2015; Denver, CO.
37. Hillman RE, **Mehta D**, Stepp C, Van Stan J, Zañartu M. Objective assessment of vocal hyperfunction. Proceedings of The Acoustical Society of America 2016; Salt Lake City, UT.
38. Brockmann-Bauser M, Bohlender JE, **Mehta DD**. Acoustic perturbation measures improve with increasing vocal intensity in healthy and pathological voices. Proceedings of the Voice Foundation Symposium 2016; Philadelphia, PA. Hamdan International Presenter Award.
39. Brockmann-Bauser M, Bohlender JE, **Mehta DD**. Gibt es einen klinischen Nutzen von Jitter und Shimmer bei Stimmpatienten? [Is there a clinical benefit in using jitter and shimmer in voice patients?] Proceedings of the Scientific Meeting of the Deutsche Gesellschaft für Phoniatrie und Pädaudiologie (DGPP) [German Association for Phoniatics and Pedaudiology] 2016; Regensburg, Germany.
40. Murton O, **Mehta D**, Daher M, Verkouw K, Tabtabai S, Steiner J, Cunningham T, Hillman R, Dec GW, Ausiello D, Semigran M. Impact of congestive heart failure on voice and speech production: A pilot study. Proceedings of the Annual Scientific Meeting of the Heart Failure Society of America 2016; Orlando, FL.



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41. McKenna V, Llico A, Mehta D, Stepp C. Neck-surface acceleration as an estimate of subglottal pressure during modulated vocal effort in healthy speakers. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2016; Philadelphia, PA.
42. Maffei M, Van Stan JH, Hillman RE, **Mehta DD**. Correlating ambulatory voice measures with vocal fatigue self-ratings in individuals with MTD and normal controls. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2016; Philadelphia, PA. Highest-rated student-authored paper in its convention topic area.
43. Stepp CE, Zañartu M, **Mehta DD**, Hillman RE. Hyperfunctional voice disorders: Current results, clinical implications, and future directions of a multidisciplinary research program. Proceedings of the Annual Convention of the American Speech-Language-Hearing Association 2016; Philadelphia, PA.
44. McKenna VS, Llico A, **Mehta D**, Perkell J, Stepp CE. Neck-surface acceleration as an estimate of subglottal pressure during modulated vocal effort and intensity in healthy speakers. Proceedings of the Occupational Voice Symposium 2017.
45. Van Stan JH, Maffei M, Masson MLV, **Mehta DD**, Hillman RE. Self-ratings of vocal status in daily life: Reliability and validity for patients with vocal hyperfunction and a normative group. Proceedings of the Occupational Voice Symposium 2017.
46. Van Stan JH, **Mehta DD**, Sternad D, Petit R, Hillman RE. Ambulatory voice biofeedback: Effect of feedback delay and frequency on reducing vocal intensity of intensive care unit nurses. Proceedings of the Occupational Voice Symposium 2017.
47. Espinoza VM, **Mehta DD**, Van Stan JH, Hillman RE, Zañartu M. Uncertainty of glottal airflow measures during continuous speech using impedance-based inverse filtering of neck-surface acceleration. Proceedings of the Acoustical Society of America 2017.
48. **Mehta DD**, Van Stan JH, Masson MLV, Maffei M, Hillman RE. Relating ambulatory voice measures with self-ratings of vocal fatigue in individuals with phonotraumatic vocal hyperfunction. Proceedings of the Acoustical Society of America 2017.
49. **Mehta DD**, Iftimia N, Kobler JB, Park J, Maguluri G, Chang E. Integrating optical coherence tomography with laryngeal videostroboscopy. Proceedings of the Acoustical Society of America 2017.
50. Cortés JP, Zañartu M, **Mehta DD**, Van Stan JH, Hillman RE. Classification of patients with muscle tension dysphonia and matched-controls using ambulatory voice monitoring. Proceedings of the International Conference on Advances in Quantitative Laryngology, Voice and Speech Research 2017.
51. 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.
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.

### 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  
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

*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*  
Evanston, IL Dec 2015  
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 10<sup>th</sup> International Conference on Advances in Quantitative Laryngology

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- Laryngeal videostroboscopy: Full exposure* Cincinnati, OH Jun 2013  
Invited by Dimitar Deliyski  
AQL Workshop course at 10<sup>th</sup> 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* Sacramento, CA Nov 2011  
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**
- 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  
ENT Clinic, University Hospital Erlangen
- Recent advances in laryngeal high-speed videoendoscopy* Valparaíso, Chile Jan 2013  
Invited by Matías Zañartu

## DARYUSH D. MEHTA

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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