

Mark Hasegawa-Johnson

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Beckman Institute 2011, University of Illinois, Urbana, IL 61801
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Education

Post-Doctoral Fellow, 1996-9, University of California at Los Angeles

Adviser: Abeer Alwan, Electrical Engineering

NRSA Title: Factor Analysis of MRI-Derived Articulator Shapes

Ph.D., August 1996, Massachusetts Institute of Technology

Adviser: Kenneth N. Stevens, Electrical and Computer Engineering

Thesis Title: Formant and Burst Spectral Measurements with Quantitative Error Models for Speech Sound Classification

S.M., June 1989, Massachusetts Institute of Technology

Adviser: Jae S. Lim, Electrical and Computer Engineering

Thesis Title: Echo Cancellation in the GSM Cellular Network

Appointments

2016-present: Professor, Informatics, **Kyoto College of Graduate Studies**, Kyoto, Japan

2014-present: Research Faculty, **Advanced Digital Sciences Center**, Singapore

2011-present: Professor, Electrical and Computer Engineering, **University of Illinois**, Urbana, IL, SA

Full-Time Faculty, Beckman Institute for Advanced Science and Technology

Part-Time Faculty, Coordinated Science Lab

Affiliated Professor, Graduate Program in Informatics

Affiliated Professor, Department of Speech and Hearing Science

Affiliated Professor, Department of Computer Science

Affiliated Professor, Department of Linguistics

2005-2011: Associate Professor, Electrical and Computer Engineering, University of Illinois

1999-2005: Assistant Professor, Electrical and Computer Engineering, University of Illinois

1996-1999: Post-Doctoral Fellow, **University of California at Los Angeles**, USA

1991-1996: Graduate Research Assistant, **Massachusetts Institute of Technology**, USA

1989-1990: Engineer, **Fujitsu Laboratories Limited**, Kawasaki, Japan

1988-1989: Engineering Intern, **Motorola Corporate Research**, Schaumburg, IL, USA

Awards

1. Co-Adviser, Best Student Paper, for the Paper "Adapting ASR for Under-Resourced Languages Using Mismatched Transcriptions," ICASSP 2016
2. Dean's Award for Excellence in Research, University of Illinois College of Engineering, 2012
3. Fellow, Acoustical Society of America (Member 1996-present, Fellow 2011-present)

4. Senior Member, Association for Computing Machinery (Member 1999-09, Senior 2009-present)
5. Co-Adviser, Best Student Paper for the paper “A Novel Gaussianized Vector Representation for Natural Scene Categorization,” by Xi Zhou, Xiaodan Zhuang, Hao Tang, Mark Hasegawa-Johnson, and Thomas Huang, *International Conference on Pattern Recognition (ICPR)*, 2008
6. Third Place Team Co-Adviser, University of Illinois information retrieval team, Star Challenge Multimedia Information Retrieval Competition, A*STAR 2008
7. Outstanding Advisers List, University of Illinois College of Engineering, April 2006
8. Best Reviewer, Neural Information Processing Systems (NIPS), 2005
9. Senior Member, IEEE (Member 1996-04, Senior 2004-present)
10. Honorary Initiate, Alpha Chapter of Eta Kappa Nu (Electrical and Computer Engineering Honor Society), 2003
11. Daily Illini Incomplete List of Teachers Rated “Excellent” by their Students, Daily Illini, 2001, 2003, 2004, 2006
12. Individual National Research Service Award, NIDCD, 1998-9
13. Frederick V. Hunt Post-Doctoral Research Fellow, Acoustical Society of America, 1996-7
14. Paul L. Fortescue Graduate Fellow, IEEE, 1989-90
15. Regular Member, Eta Kappa Nu (ECE Honor Society), Tau Beta Pi (Engineering Honor Society), Sigma Xi (Scientific Research Society), Phi Beta Kappa (Liberal Arts and Sciences Honor Society)

Offices Held in Professional Societies

1. **Treasurer, ISCA** (International Speech Communication Association, 2013-present)
2. **Member, Speech and Language Technical Committee (SLTC)**, IEEE Signal Processing Society (2011-present)
3. **Secretary**, Speech Prosody Special Interest Group (SProsIG) of the International Speech Communication Association (ISCA) (2010-present)
4. **Associate Editor**, J. Acoust. Soc. Am. (2009-present), Laboratory Phonology (2009-2015), IEEE Trans. Audio, Speech, and Language (2006-2009), IEEE Signal Processing Letters (2002-2004).
5. **Articulograph International Steering Committee**, member, 2007-present (wiki.ag500.net)
6. **Executive Secretary**, Phi Beta Kappa (Liberal Arts and Sciences Honor Society), Gamma of Illinois Chapter, University of Illinois, 2006-present
7. **Chapter Adviser**, Eta Kappa Nu (Electrical and Computer Engineering Honor Society), Alpha Chapter, University of Illinois at Urbana-Champaign, 2004-2007
8. **Scholarship Chair**, Phi Beta Kappa (Liberal Arts and Sciences Honor Society), Gamma of Illinois Chapter, University of Illinois, 2004-2006

Synergistic Activities

1. **Plenary Speaker**, WiSSAP 2016 (Winter School in Speech and Audio Processing), Chennai, India, January 8-11, 2016
2. **Workshop Organizer/POC**, Jelinek Memorial Workshop WS15, “Probabilistic Transcription Using EEG and Crowdsourcing for Languages with No Native Language Transcribers,” June–August, 2015, Seattle, WA
3. **Panel Organizer**, VAC Consortium Working Group on Multimedia Analytics (Adelphi, MD; May 2011)
4. **Workshop Co-Chair**, SPREI Speech Production Workshop (Urbana, IL; May 2011)
5. **Workshop Co-Chair**, Illinois Speech Day (Chicago, IL; May 2009, May 2010, May 2011)
6. **General Chair**, Fifth International Conference on Speech Prosody (2010)
7. **Beckman Institute Program Advisory Committee**, 2008-present

8. **Workshops Co-Chair**, HLT/NAACL 2009
9. **Team Member**, DARPA/NSF CLSP Summer Research Workshop, Articulatory-Feature Based Speech Recognition, 2006
10. **Team Leader**, DARPA/NSF CLSP Summer Research Workshop, Landmark-Based Speech Recognition, 2004
11. **Technical Committee or Conference Reviewer**: AISTATS; Allerton Conf. Communicat. Control Computing; Asia-Pacific Sign. Informat. Process. Assoc. (APSIPA); IEEE Worksh. Automatic Speech Recognition & Understanding (ASRU); Content-Based Multimedia Indexing (CBMI); Empiric. Meth. Natural Lang. Process.; Human Lang. Techn./North Amer. Meeting Assoc. Computat. Linguistics (HLT/NAACL); Internat. Conf. Acoust. Speech Sign. Process. (ICASSP); Internat. Conf. Communications (ICC); Internat. Conf. Machine Learning (ICML); Internat. Conf. Pattern Recogn. (ICPR); Internat. Conf. Public Participat. Informat. Techn. (ICPPIT); International Conference on Pattern Recognition Applications and Methods (ICPRAM); Interspeech; L2 Workshop; Laboratory Phonology (LabPhon); Midwest Colloq. Computat. Linguistics (MCLC); Neural Information Processing Systems (NIPS; Voted 'Best Reviewer. NIPS 2005); Speech and Language Processing for Assistive Technology (SLPAT); Speech and Language Technology for Education (SLaTE); Speech Production in Automatic Speech Recognition (SPASR); Speech Production Research and Education Initiative (SPREI); Speech Prosody; IEEE Worksh. Spoken Lang. Techn. (SLT)
12. **Session Chair**: ASA; Allerton; HLT/NAACL; ICASSP; ICPPIT; Interspeech; LabPhon; MCLC; SpeechProsody
13. **Journal Reviewer**: ACM Trans. Asian Language Processing; Acoustics Research Letters Online (ARLO); Acustica/Acta Acustica; Clinical Linguistics and Phonetics; Computer Speech and Language; EURASIP Journal on Audio; IEEE Proceedings on Vision, Image, and Signal Processing; IEEE Signal Processing Letters; IEEE Transactions on Acoustics, Speech, and Signal Processing; IEEE Transactions on Aerospace and Electronic Systems; IEEE Transactions on Audio, Speech, and Language; IEEE Transactions on Signal Processing; IEEE Transactions on Speech and Audio Processing; Journal of the Acoustical Society of America; Journal of Phonetics; Journal of Speech, Language, and Hearing Research; Journal of Speech Sciences; Journal of Zhejiang University of Science and Technology; Machine Learning Journal; Pattern Recognition; Pattern Recognition Letters; Proceedings of the IEEE; Sadha; Speech Communication
14. **Proposal Reviewer**: National Science Foundation (NSF). 12 research funding panels, one graduate fellowship panel, four technical mail reviews; Netherlands Organization for Scientific Research (NWO), two technical mail reviews; National Science and Engineering Research Council of Canada (NSERC), two mail reviews; Qatar National Research Fund (QNRF), two mail reviews, Springer Academic Publishing, two textbook proposal reviews
15. **Course Director**, Audio Engineering (ECE 403), 2001-2012

Students and Collaborators

- **PhD Students (Graduated)**: Mohamed Kamal Omar (12/2003; IBM), Ken Chen (5/2004; Washington University), Yanli Zheng (12/2004; University of Chicago), Bowon Lee (12/2006; Hewlett-Packard), Bryce Lobdell (5/2009; openbi.com), Lae-Hoon Kim (8/2010; Qualcomm), Arthur Kantor (10/2010; IBM), Boon Pang Lim (12/2010; A*STAR), Xiaodan Zhuang (5/2011; BBN), Andreas Ehmann (12/2011; University of Illinois), Jui-Ting Huang (1/2012; Microsoft); Harsh Vardhan Sharma (2/2012; S&P Capital IP); Po-Sen Huang (5/2015; Clarifai); Sujeeth Bharadwaj (5/2015; BBN)
- **PhD Students (Current)**: Wenda Chen, Amit Das, Sarah King, Xiang Kong, Mary Pietrowicz, Kaizhi Qian, Leda Sari, Roger Serwy, Xuesong Yang, Yang Zhang, Tianyilin Zhu
- **Post-Doctoral Fellows**: Jeung-Yoon Choi (2002-4; Yonsei University); Heejin Kim (2006-10; University of Illinois); Kyung-Tae Kim (2008-10; Samsung); Arthur Kantor (2010-11; IBM); Suma Bhat (2011-4; UIUC); Preethi Jyothi (2013-6)

- **Visiting Professors and Visiting Scholars:** Sung-Suk Kim (Yong-In University; 2002-2003), Sung-Tae Jung (Wong-Kwang University; 2004-2005), Yanxiang Chen (University of Science and Technology of China; 2005-6), Zhijian Ou (Tsinghua University; 2014-5), Yanlu Xie (Beijing Language and Culture University; 2015-6)
- **Post-Graduate and Post-Doctoral Advisors:** Jae S. Lim (MIT), Kenneth N. Stevens (MIT), Abeer Alwan (UCLA)
- **Collaborators and Co-Editors not at the University of Illinois, Past Five Years:** Hanady Mansour Ahmed (Qatar University), Raman Arora (TTI), Jeff Bilmes (U. Washington), Haitham El-Bashir (Hamad Medical Corporation), Ajay Divakaran (SRI), Carol Espy-Wilson (U. Maryland), Eric Fosler-Lussier (Ohio State U.), Gerald Friedland (ICSI), Louis Goldstein (USC), Luke Gottlieb (ICSI), Amit Juneja (Think-A-Move Ltd.), Sanjeev Khudanpur (Johns Hopkins U.), Katrin Kirchhoff (U. Washington), Edmund Lalor (Trinity College, Dublin), Adrian KC Lee (U. Washington), Karen Livescu (TTI), Robert Mertens (ICSI), Eiman Mustafawi (Qatar University), Hosung Nam (Haskins Labs), Allan M. Ramsay (University of Manchester), Jamal Saboune (Immersion, Inc.), Elliott Saltzmann (Boston University), Mark Tiede (MIT)

Grants Received

1. Fellow: Factor Analysis of MRI-Derived Articulator Shapes. NIH Individual National Research Service Award, 1999.
2. PI: Factor Analysis of the Tongue Shapes of Speech. University of Illinois Research Board, 1999-2000.
3. PI: Immersive Headphone-free Virtual Reality Audio. University of Illinois Research Board, 2001-2002.
4. PI: Prosody-Dependent Speech Recognition. University of Illinois Critical Research Initiative, 2002-2004.
5. PI: CAREER: Landmark-Based Speech Recognition in Music and Speech Backgrounds. NSF IIS 01-32900, 2002-2007.
6. PI: Acoustic Features for Phoneme Recognition. Phonetact Incorporated, 2002.
7. PI: Audiovisual Speech Recognition: Data Collection and Feature Extraction in Automotive Environment. Motorola Communications Center RPS 19, 2002-2005.
8. Co-PI: Development and Validation of An E-diary System for Assessing Physical Activity and Travel Behaviors. Robert Wood Johnson Foundation, 2003-2004.
9. PI: Prosodic, Intonational, and Voice Quality Correlates of Disfluency. NSF IIS 04-14117, 2004-2007.
10. Co-PI: Automated Methods for Second-Language Fluency Assessment. University of Illinois Critical Research Initiative, 2005-2007.
11. PI: Audiovisual Distinctive-Feature-Based Recognition of Dysarthric Speech. NSF IIS 05-34106, 2006-2010.
12. PI: Description and Recognition of Audible and Visible Dysarthric Phonology, NIH, PHS 1 R21 DC008090A, 2006-2009.
13. PI: Rhythmic Organization of Durations for Automatic Speech Recognition. UIUC Research Board, 2005-6.
14. Co-PI: Cell Phone Annoyance Factors. QUALCOMM, Inc., 2005-7.
15. Co-PI: Audiovisual Emotional Speech AVATAR. Motorola Communications Center RPS 31, 2005-7.
16. Co-PI: DHB: Fluency and the Dynamics of Second Language Acquisition. NSF IIS 06-23805, 2006-10.
17. Co-PI: RI-Collaborative Research: Landmark-based robust speech recognition using prosody-guided models of speech variability. NSF IIS 07-03624, 2007-12.
18. PI: RI Medium: Audio Diarization - Towards Comprehensive Description of Audio Events. NSF IIS 08-03219, 2008-10.
19. PI: FODAVA-Partner: Visualizing Audio for Anomaly Detection. NSF CCF 08-07329, 2008-13.
20. Co-PI: Opportunistic Sensing for Object and Activity Recognition from Multi-Modal, Multi-Platform Data. ARO W911NF-09-1-0383, 2009-14.

21. PI: Multi-dialect phrase-based speech recognition and machine translation for Qatari broadcast TV. Qatar National Research Fund NPRP 09-410-1-069, 2010-3.
22. Co-PI: CDI-Type II: Collaborative Research: Groupscope: Instrumenting Research on Interaction Networks in Complex Social Contexts, NSF 0941268, 2010-4.
23. Co-PI: Speech Production Research Initiative, University of Illinois Graduate College Focal Point Program, 2010-11
24. Faculty Mentor: FY 2011 Summer Undergraduate Research Fellowship SURF NIST Gaithersburg, NIST COM 70NANB11H087, 2011
25. PI: Pseudo-intelligent mediators (“Robo-Buddies”) to improve communication between students with and students without physical disabilities, Illinois Innovation Initiative (In3), 2012-4
26. Co-PI: Conversation Strategies for Students With and Students Without Physical Disabilities, University of Illinois Graduate College Focal Point Program, 2012-3
27. Co-PI: AHRQ R21-Hs022948, Collaborative Patient Portals: Computer-based Agents and Patients’ Understanding of Numeric Health Information, 2014-6
28. LPI: QNRF NPRP 7-766-1-140, The Family as the Unit of Intervention for Speech-Generating Augmentative/Assistive Communication, 2014-7
29. PI: Illinois Learning Sciences Design Initiative (ILSDI), University of Illinois. “Capturing. Transcribing. Searching. Analyzing. Adaptive: Learning in a curated classroom.” 2015-6
30. Co-PI: Institute for Infocomm Research (I²R), Agency for Science, Technology, Advancement and Research (ASTAR), Singapore. “Mismatched Crowdsourcing for 80-Language Speech Recognition.” 2015-7
31. PI: Advanced Digital Sciences Center (ADSC), Singapore. “Noisy Channel Models for Massively Multilingual Automatic Speech Recognition.” 2015-7
32. PI: NSF. “EAGER: Matching Non-Native Transcribers to the Distinctive Features of the Language Transcribed.” 2015-6
33. Co-PI: DARPA LORELEI. “LanguageNet: Transfer Learning Across a Language Similarity Networks.” 2015-9

Journal Articles, Patents, and Book Chapters

Publications are also listed at <https://scholar.google.com/citations?user=18000AwAAAAJ&hl=en>

1. Mark Hasegawa-Johnson and T. Taniguchi, “On-line and off-line computational reduction techniques using backward filtering in CELP speech coders,” *IEEE Transactions Acoustics, Speech, and Signal Processing*, vol. 40, pp. 2090-2093, 1992
2. T. Taniguchi and M. Johnson (Assignee: Fujitsu, Ltd.), “Speech coding system,” United States Patent 5245662, September 14, 1993.
3. T. Taniguchi, M. Johnson, H. Kurihara, Y. Tanaka, and Y. Ohta (Assignee: Fujitsu, Ltd.), “Speech coding and decoding system,” United States Patent 5199076, March 30, 1993
4. T. Taniguchi, M. Johnson, Y. Ohta, H. Kurihara, Y. Tanaka, and Y. Sakai (Assignee: Fujitsu, Ltd.), “Speech coding system having codebook storing differential vectors between each two adjoining code vectors,” United States Patent 5323486, June 21, 1994
5. T. Taniguchi and M. Johnson (Assignee: Fujitsu, Ltd.), “Speech coding and decoding system,” United States Patent 5799131, August 25, 1998.
6. Mark Hasegawa-Johnson, “Electromagnetic Exposure Safety of the Carstens Articulograph AG100,” *Journal of the Acoustical Society of America*, vol. 104, pp. 2529-2532, 1998.
7. Mark Hasegawa-Johnson, “Line Spectral Frequencies are the Poles and Zeros of a Discrete Matched-Impedance Vocal Tract Model,” *Journal of the Acoustical Society of America*, vol. 108, no. 1, pp. 457-460, 2000.

8. Mark Hasegawa-Johnson, "Finding the Best Acoustic Measurements for Landmark-Based Speech Recognition" [in Japanese], *Accume Magazine* 11:45-7, Kyoto Computer Gakuin, Kyoto, Japan, 2002 (NSF 0132900)
9. Mark Hasegawa-Johnson and Abeer Alwan, "Speech Coding: Fundamentals and Applications," *Wiley Encyclopedia of Telecommunications*, J. Proakis, Ed., Wiley and Sons, NY, January, 2003, DOI:10.1002/0471219282. (NSF 0132900)
10. Yanli Zheng, Mark Hasegawa-Johnson, and Shamala Pizza, "PARAFAC Analysis of the Three dimensional tongue Shape," *Journal of the Acoustical Society of America*, vol. 113, no. 1, pp. 478-486, January 2003 (NSF 0132900).
11. Mark Hasegawa-Johnson, Shamala Pizza, Abeer Alwan, Jul Cha, and Katherine Haker, "Vowel Category Dependence of the Relationship Between Palate Height, Tongue Height, and Oral Area," *Journal of Speech, Language, and Hearing Research*, vol. 46, no. 3, pp. 738-753, 2003 (NSF 0132900).
12. M. Kamal Omar and Mark Hasegawa-Johnson, "Approximately Independent Factors of Speech Using Nonlinear Symplectic Transformation," *IEEE Transactions on Speech and Audio Processing*, vol. 11, no. 6, pp. 660-671, 2003 (NSF 0132900).
13. Sung-Suk Kim, Mark Hasegawa-Johnson, and Ken Chen, "Automatic Recognition of Pitch Movements Using Multilayer Perceptron and Time-Delay Recursive Neural Network," *IEEE Signal Processing Letters* 11(7):645-648, 2004 (NSF 0414117).
14. M. Kamal Omar and Mark Hasegawa-Johnson, "Model Enforcement: A Unified Feature Transformation Framework for Classification and Recognition," *IEEE Transactions on Signal Processing*, vol. 52, no. 10, pp. 2701-2710, 2004 (NSF 0132900).
15. Mark Hasegawa-Johnson, Ken Chen, Jennifer Cole, Sarah Borys, Sung-Suk Kim, Aaron Cohen, Tong Zhang, Jeung-Yoon Choi, Heejin Kim, Taejin Yoon, and Sandra Chavarria, "Simultaneous Recognition of Words and Prosody in the Boston University Radio Speech Corpus," *Speech Communication* 46(3-4):418-439, 2005 (NSF 0414117).
16. Jeung-Yoon Choi, Mark Hasegawa-Johnson, and Jennifer Cole, "Finding Intonational Boundaries Using Acoustic Cues Related to the Voice Source," *Journal of the Acoustical Society of America* 118(4):2579-88, 2005 (NSF 0414117).
17. Ken Chen, Mark Hasegawa-Johnson, Aaron Cohen, Sarah Borys, Sung-Suk Kim, Jennifer Cole and Jeung-Yoon Choi, "Prosody Dependent Speech Recognition on Radio News Corpus of American English," *IEEE Transactions on Speech and Audio Processing*, 14(1):232-245, 2006 (NSF 0414117).
18. Tong Zhang, Mark Hasegawa-Johnson and Stephen E. Levinson, "Cognitive State Classification in a spoken tutorial dialogue system," *Speech Communication* 48(6):616-632, 2006.
19. Tong Zhang, Mark Hasegawa-Johnson and Stephen E. Levinson, "Extraction of Pragmatic and Semantic Salience from Spontaneous Spoken English," *Speech Communication* 48(3-4):437-462, 2006.
20. Ken Chen, Mark Hasegawa-Johnson and Jennifer Cole, "A Factored Language Model for Prosody-Dependent Speech Recognition," in *Speech Synthesis and Recognition*, Robust Speech Recognition and Understanding, Michael Grimm and Kristian Kroschel (Ed.), pp. 319-332, 2007 (NSF 0414117).
21. Xi Zhou, Xiaodan Zhuang, Ming Liu, Hao Tang, Mark Hasegawa-Johnson and Thomas Huang, "HMM-Based Acoustic Event Detection with AdaBoost Feature Selection," *Lecture Notes in Computer Science*, Volume 4625:345-353, 2008 (NSF 0807329)
22. Jennifer Cole, Heejin Kim, Hansook Choi, and Mark Hasegawa-Johnson, "Prosodic effects on acoustic cues to stop voicing and place of articulation: Evidence from Radio News speech." *J Phonetics* 35:180-209, 2007 (NSF 0414117).
23. Taejin Yoon, Xiaodan Zhuang, Jennifer Cole and Mark Hasegawa-Johnson, "Voice Quality Dependent Speech Recognition, in *Linguistic Patterns in Spontaneous Speech*, Shu-Chuan Tseng, Ed., Language and Linguistics Monograph Series A25, Academica Sinica, 2008, pp. 77-100 (NSF 0414117)
24. Mark Hasegawa-Johnson, Jennifer Cole, Ken Chen, Partha Lal, Amit Juneja, Tae-Jin Yoon, Sarah Borys, and Xiaodan Zhuang, "Prosodic Hierarchy as an Organizing Framework for the Sources of Context in Phone-Based and Articulatory-Feature Based Speech Recognition," in *Linguistic Patterns in Spontaneous Speech*, Shu-Chuan Tseng, Ed., Language and Linguistics Monograph Series A25, Academica Sinica, 2008, pp. 101-128 (NSF 0703624)

25. Soo Eun Chang, Noline Ambrose, Christy Ludlow, and Mark Hasegawa-Johnson, "Brain Anatomy Differences in Childhood Stuttering," *Neuroimage* 39(3):1333-1344 (ISSN:1053-8119), 2008
26. Lae-Hoon Kim, Mark Hasegawa-Johnson, Jun-Seok Lim, and Keong Sung, "Acoustic Model for Robustness Analysis of optimal multi-point room equalization," *J. Acoust. Soc. Am.* 123(4):2043-2053, 2008 (NSF 0534106).
27. Hao Tang, Yun Fu, Jilin Tu, Mark Hasegawa-Johnson, and Thomas S. Huang, "Humanoid Audio-Visual Avatar with Emotive Text-to-Speech Synthesis," *IEEE Trans. Multimedia* 10(6):969-981, 2008.
28. Su-Youn Yoon, Lisa Pierce, Amanda Huensch, Eric Juul, Samantha Perkins, Richard Sproat, and Mark Hasegawa-Johnson, "Construction of a rated speech corpus of L2 learners' speech," *CALICO Journal* 26(3):662-673, May 2009
29. Thomas S. Huang, Mark A. Hasegawa-Johnson, Stephen M. Chu, Zhihong Zeng, and Hao Tang, "Sensitive Talking Heads," *IEEE Signal Processing Magazine* 26(4):67-72, July 2009 (NSF 0807329)
30. Hao Tang, Mark Hasegawa-Johnson, and Thomas S. Huang, "A novel vector representation of stochastic signals based on adapted ergodic HMMs," *IEEE Signal Processing Letters*, **17**(8):715-718, 2010 (NSF 0534106)
31. Xiaodan Zhuang, Xi Zhou, Mark A. Hasegawa-Johnson, and Thomas S. Huang, "Real-world Acoustic Event Detection," *Pattern Recognition Letters*, **31**(2):1543-1551, 2010 (NSF 0807329)
32. Xi Zhou, Xiaodan Zhuang, Hao Tang, Mark A. Hasegawa-Johnson, and Thomas S. Huang, "Novel Gaussianized Vector Representation for Improved Natural Scene Categorization," *Pattern Recognition Letters*, **31**(8):702-708, 2010 (NSF 0807329)
33. Jennifer Cole, Yoonsook Mo, and Mark Hasegawa-Johnson, "Signal-based and expectation-based factors in the perception of prosodic prominence," *Journal of Laboratory Phonology* 1(2):425-452, 2010 (NSF 0703624)
34. Heejin Kim, Katie Martin, Mark Hasegawa-Johnson, and Adrienne Perlman, "Frequency of consonant articulation errors in dysarthric speech," *Clinical Linguistics & Phonetics*, **24**(10):759-770, 2010 (NSF 0534106)
35. Bryce E Lobdell, Jont B Allen, and Mark A Hasegawa-Johnson, "Intelligibility predictors and neural representation of speech," *Speech Communication*, **53**:185-194, 2011 (NSF 0807329)
36. İ. Yücel Özbek, Mark Hasegawa-Johnson and Mübeccel Demirekler, "Estimation of Articulatory Trajectories Based on Gaussian Mixture Model (GMM) with Audio-Visual Information Fusion and Dynamic Kalman Smoothing," *IEEE Transactions on Audio, Speech and Language*, **19**(5):1180-1195, 2011
37. Heejin Kim, Mark Hasegawa-Johnson, and Adrienne Perlman, "Vowel Contrast and Speech Intelligibility in Dysarthria," *Folia Phoniatrica et Logopaedica*, **63**(4):187-194, 2011 (NIH R21 DC008090A)
38. İ. Yücel Özbek, Mark Hasegawa-Johnson and Mübeccel Demirekler, "On Improving Dynamic State Space Approaches to Articulatory Inversion with MAP based Parameter Estimation," *IEEE Transactions on Audio, Speech, and Language*, **20**(1):67-81, 2012
39. Hao Tang, Stephen Chu, Mark Hasegawa-Johnson, and Thomas Huang, "Partially Supervised Speaker Clustering," *IEEE Transactions on Pattern Analysis and Machine Intelligence* 34(5):959-971, May 2012 (NSF 0807329)
40. Shobhit Mathur, Marshall Scott Poole, Feniosky Peña-Mora, Mark Hasegawa-Johnson and Noshir Contractor, "Detecting interaction links in a collaborating group using manually annotated data," *Social Networks*, doi:10.1016/j.socnet.2012.04.002, 2012 (NSF 0941268)
41. Xiaodan Zhuang, Xi Zhou, Mark A. Hasegawa-Johnson, and Thomas S. Huang, "Efficient Object Localization with Variation-Normalized Gaussianized Vectors," In *Intelligent Video Event Analysis and Understanding*; Zhang, J., Shao, L., Zhang, L., Jones, G. A., Eds. 2011; Vol. 332, 93-109 (NSF 0807329)
42. Panying Rong, Torrey Loucks, Heejin Kim, and Mark Hasegawa-Johnson, "Relationship between kinematics, F2 slope and speech intelligibility in dysarthria due to cerebral palsy," in *Clinical Linguistics and Phonetics*, September 2012, Vol. 26, No. 9 , Pages 806-822 (doi:10.3109/02699206.2012.706686)

43. Harsh Vardhan Sharma and Mark Hasegawa-Johnson, "Acoustic Model Adaptation using In-domain Background Models for Dysarthric Speech Recognition," *Computer Speech and Language*, Volume 27, Issue 6, September 2013, Pages 1147-1162, <http://dx.doi.org/10.1016/j.csl.2012.10.002> (NSF 0534106)
44. Hosung Nam, Vikramjit Mitra, Mark Tiede, Mark Hasegawa-Johnson, Carol Espy-Wilson, Elliot Saltzman, and Louis Goldstein, "A procedure for estimating gestural scores from speech acoustics," *J. Acoust. Soc. Am.* **132**(6):3980-3989, 2012 (NSF 0703624)
45. Mohamed Elmahdy, Mark Hasegawa-Johnson and Eiman Mustafawi, "Hybrid Phonemic and Graphemic Modeling for Arabic Speech Recognition," *International Journal of Computational Linguistics* 3(1), pp. 88-96, 2012 (ISSN 2180-1266; QNRF NPRP 09-410-1-069)
46. Robert Mertens, Po-Sen Huang, Luke Gottlieb, Gerald Friedland, Ajay Divakaran, Mark Hasegawa-Johnson, "On the Application of Speaker Diarization to Audio Indexing of Non-Speech and Mixed Non-Speech/Speech Video Soundtracks," *International Journal of Multimedia Data Engineering and Management (IJDEM)*, July 2012, Volume 3, Issue 3, pp. 1-19, DOI: 10.4018/jmdem.2012070101
47. Jennifer Cole, Mark Hasegawa-Johnson, Dan Loehr, Linda Van Guilder, Henning Reetz, Stefan A. Frisch, "Corpora, Databases, and Internet Resources," in *Oxford Handbook on Laboratory Phonology*, DOI: 10.1093/oxfordhb/9780199575039.013.0017
48. Kyungtae Kim, Kai-Hsiang Lin, Dirk B Walther, Mark A Hasegawa-Johnson, and Thomas S Huang, "Automatic Detection of Auditory Saliency with Optimized Linear Filters Derived from Human Annotation," *Pattern Recognition Letters* PRLETTERS-D-13-00473R1 (NSF 0803219)
49. Kai-Hsiang Lin, Xiaodan Zhuang, Camille Goudeseune, Sarah King, Mark A Hasegawa-Johnson and Thomas S Huang, "Saliency-maximized Audio Visualization and Efficient Audio-visual Browsing for Faster-than-real-time Human Acoustic Event Detection," *ACM Transactions on Applied Perception* 10(4):26:1-12, 2013 (ISSN 1544-3558; NSF 0803219)
50. Mark Hasegawa-Johnson, "Probabilistic Segmental Model For Doppler Ultrasound Heart Rate Monitoring," United States Patent Number 8,727,991 B2 for Salutron Corporation, May 20, 2014
51. Austin Chen and Mark Hasegawa-Johnson, "Mixed Stereo Audio Classification Using a Stereo-Input Mixed-to-Panned Level Feature," *IEEE Trans. Speech and Audio Proc.* 22(12):2025-2033, 2014 (doi 10.1109/TASLP.2014.2359628; QNRF NPRP 09-410-1-069)
52. Mark Hasegawa-Johnson, Jennifer Cole, Preethi Jyothi and Lav R. Varshney, "Models of Dataset Size, Question Design, and Cross-Language Speech Perception for Speech Crowdsourcing Applications," *Laboratory Phonology* 6(3-4):381-432, 2015, issn: 1868-6354
53. Po-Sen Huang, Minje Kim, Mark Hasegawa-Johnson and Paris Smaragdis, "Joint Optimization of Masks and Deep Recurrent Neural Networks for Monaural Source Separation," *IEEE/ACM Trans. Audio, Speech and Language Processing* 23(12):2136-2147, doi: 10.1109/TASLP.2015.2468583
54. Karen Livescu, Frank Rudzicz, Eric Fosler-Lussier, Mark Hasegawa-Johnson and Jeff Bilmes, "Speech Production in Speech Technologies: Introduction to the CSL Special Issue," *Computer Speech and Language* 36:165-172, 2016, issn: 0885-2308
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Peer-Reviewed Conference Papers

All papers in this section are 4-8 page peer-reviewed papers. Common acronyms: ASRU=IEEE Workshop on Automatic Speech Recognition and Understanding. ICASSP=IEEE International Conference on Acoustics, Speech, and Signal Processing. ICPR=International Conference on Pattern Recognition, Interspeech=ICSLP=ISCA International Conference on Spoken Language Processing (name was changed in 2000), SpeechProsody=ISCA International Conference on Speech Prosody.

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