

# Mark Hasegawa-Johnson

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## Education

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  
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  
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

## Appointments

1988-1989: Engineering Intern, Motorola Corporate Research, Schaumburg, IL  
1989-1990: Engineer, Fujitsu Laboratories Limited, Kawasaki, Japan  
1999-present: University of Illinois at Urbana-Champaign  
Professor, Department of Electrical and Computer Engineering  
Full-Time Faculty, Beckman Institute for Advanced Science and Technology  
Part-Time Faculty, Coordinated Science Laboratory  
Affiliate Professor, Department of Speech and Hearing Science  
Affiliate Professor, Department of Computer Science  
Affiliate Professor, Department of Linguistics  
2007: Visiting Professor, University of Washington

## Awards

1. **Dean's Award for Excellence in Research**, University of Illinois College of Engineering, 2012
2. **Fellow**, Acoustical Society of America (Member 1996-present, Fellow 2011-present)
3. **Senior Member**, Association for Computing Machinery (Member 1999-09, Senior 2009-present)
4. **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
5. **Third Place Team Co-Adviser**, University of Illinois information retrieval team, *Star Challenge Multimedia Information Retrieval Competition, A\*STAR* 2008
6. **Outstanding Advisers List**, University of Illinois College of Engineering, April 2006
7. **Best Reviewer**, *Neural Information Processing Systems (NIPS)*, 2005
8. **Senior Member**, IEEE (Member 1996-04, Senior 2004-present)
9. **Honorary Initiate**, Alpha Chapter of Eta Kappa Nu (Electrical and Computer Engineering Honor Society), 2003
10. **Daily Illini Incomplete List of Teachers Rated "Excellent" by their Students**, Daily Illini, 2001, 2003, 2004, 2006
11. **Individual National Research Service Award**, NIDCD, 1998-9
12. **Frederick V. Hunt Post-Doctoral Research Fellow**, Acoustical Society of America, 1996-7
13. **Paul L. Fortescue Graduate Fellow**, IEEE, 1989-90
14. **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. **Member of Speech and Language Technical Committee (SLTC)**, IEEE Signal Processing Society (2011-present)
2. **Secretary**, Speech Prosody Special Interest Group (SProSIG) of the International Speech Communication Association (ISCA) (2010-present)
3. **Associate Editor**, J. Acoust. Soc. Am. (2009-present), Laboratory Phonology (2009-present), IEEE Trans. Audio, Speech, and Language (2006-2009), IEEE Signal Processing Letters (2002-2004).
4. **Articulograph International Steering Committee**, member, 2007-present (wiki.ag500.net)
5. **Executive Secretary**, Phi Beta Kappa (Liberal Arts and Sciences Honor Society), Gamma of Illinois Chapter, University of Illinois, 2006-present
6. **Chapter Adviser**, Eta Kappa Nu (Electrical and Computer Engineering Honor Society), Alpha Chapter, University of Illinois at Urbana-Champaign, 2004-2007
7. **Scholarship Chair**, Phi Beta Kappa (Liberal Arts and Sciences Honor Society), Gamma of Illinois Chapter, University of Illinois, 2004-2006

## Synergistic Activities

1. **Panel Organizer**, VAC Consortium Working Group on Multimedia Analytics (Adelphi, MD; May 2011)
2. **Workshop Co-Chair**, SPREI Speech Production Workshop (Urbana, IL; May 2011)
3. **Workshop Co-Chair**, Illinois Speech Day (Chicago, IL; May 2009, May 2010, May 2011)
4. **General Chair**, Fifth International Conference on Speech Prosody (2010)
5. **Beckman Institute Program Advisory Committee**, 2008-present
6. **Workshops Co-Chair**, HLT/NAACL 2009
7. **Team Member**, DARPA/NSF CLSP Summer Research Workshop, Articulatory-Feature Based Speech Recognition, 2006
8. **Team Leader**, DARPA/NSF CLSP Summer Research Workshop, Landmark-Based Speech Recognition, 2004
9. **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 Research and Education Initiative (SPREI); Speech Prosody; IEEE Worksh. Spoken Lang. Techn. (SLT)
10. **Session Chair**: ASA; Allerton; HLT/NAACL; ICASSP; ICPPIT; Interspeech; LabPhon; MCLC; SpeechProsody
11. **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

12. **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
13. **Course Director,** Audio Engineering (ECE 403), 2001-present

## 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), 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)
- **PhD Students (Current):** Sujeeth Bharadwaj, Po-Sen Huang, Sarah King
- **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)
- **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)
- **Post-Graduate and Post-Doctoral Advisors:** Jae S. Lim (MIT), Kenneth N. Stevens (MIT), Abeer Alwan (UCLA)
- **Other Collaborators, last five years (funded grant or co-authored paper):** J. Kathryn Bock (Illinois), Özgür Çetin (ICSI), Jennifer Cole (Illinois), Carol Espy-Wilson (U. Maryland), Louis Goldstein (USC), Jon Gunderson (Illinois), Mary Harper (U. Maryland), Thomas Huang (Illinois), Simon King (U. Edinburgh), Katrin Kirchhoff (U. Washington), Karen Livescu (TTI), Adrienne Perlman (Illinois), Brian Ross (Illinois), Dan Roth (Illinois), Elliott Saltzman (Boston University), Chilin Shih (Illinois), Richard Sproat (OHSU)

## 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 MURI 31, 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: Groupscape: Instrumenting Research on Interaction Networks in Complex Social Contexts, NSF 0941268, 2010-4.
23. Faculty Mentor: FY 2011 Summer Undergraduate Research Fellowship SURF NIST Gaithersburg, NIST COM 70NANB11H087, 2011

## Journal Articles and Book Chapters

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. Mark Hasegawa-Johnson, "Electromagnetic Exposure Safety of the Carstens Articulograph AG100," *Journal of the Acoustical Society of America*, vol. 104, pp. 2529-2532, 1998.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.

12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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
18. 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.
19. 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
20. 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)
21. 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
22. 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.
23. 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.
24. 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
25. 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
26. 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
27. 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
28. 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
29. 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
30. 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.

31. Bryce E Lobdell, Jont B Allen, and Mark A Hasegawa-Johnson, "Intelligibility predictors and neural representation of speech," *Speech Communication*, **53**:185-194, 2011
32. 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
33. Heejin Kim, Mark Hasegawa-Johnson, and Adrienne Perlman, "Vowel Contrast and Speech Intelligibility in Dysarthria," *Folia Phoniatrica et Logopaedica*, **63**(4):187-194, 2011.
34. 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
35. 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
36. 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
37. 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.
38. Panyong 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)

## Peer-Reviewed Conference Papers

All papers in this section are 4-8 page peer-reviewed papers. Acceptance rates at these conferences vary from 20-90%; when the acceptance rate for a particular conference is known, it is listed next to the conference title. 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.

1. M. A. Johnson and T. Taniguchi, "Computational reduction in sparse-codebook CELP using backward-weighting of the input," Institute of Electr., Information, and Comm. Eng. Symposium, DSP 90-15, Hakata, 61-66, 1990.
2. T. Taniguchi, M. A. Johnson, and Y. Ohta, "Multi-vector pitch-orthogonal LPC: quality speech with low complexity at rates between 4 and 8 kbps," ICSLP, Kobe, pp. 113-116, 1990.
3. M. A. Johnson and T. Taniguchi, "Pitch-orthogonal code-excited LPC," IEEE Global Telecommunications Conference, San Diego, CA, pp. 542-546, 1990.
4. M. A. Johnson and T. Taniguchi, "Low-complexity multi-mode VXC using multi-stage optimization and mode selection," ICASSP, Toronto, Canada, pp. 221-224, 1991.
5. T. Taniguchi, M. A. Johnson, and Y. Ohta, "Pitch sharpening for perceptually improved CELP, and the sparse-delta codebook for reduced computation," ICASSP, Toronto, Canada, pp. 241-244, 1991.
6. T. Taniguchi, F. Amano, and M. A. Johnson, "Improving the performance of CELP-based speech coding at low bit rates," International Symposium on Circuits and Systems, Singapore, pp. 1024-7, 1991.
7. M. Johnson, "Automatic context-sensitive measurement of the acoustic correlates of distinctive features," ICSLP, Yokohama, pp. 1639-1643, 1994
8. M. Hasegawa-Johnson, "Combining magnetic resonance image planes in the Fourier domain for improved spatial resolution." International Conference On Signal Processing Applications and Technology, Orlando, FL, pp. 81.1-5, 1999

9. M. Hasegawa-Johnson, J. Cha, S. Pizza and K. Haker, "CTMRedit: A case study in human-computer interface design," International Conference On Public Participation and Information Tech., Lisbon, pp. 575-584, 1999
10. M. Hasegawa-Johnson, "Multivariate-State Hidden Markov Models for Simultaneous Transcription of Phones and Formants," ICASSP, Istanbul, pp. 1323-26, 2000
11. M. Hasegawa-Johnson, "Time-Frequency Distribution of Partial Phonetic Information Measured Using Mutual Information," Interspeech IV:133-136, Beijing, 2000.
12. W. Gunawan and M. Hasegawa-Johnson, "PLP Coefficients can be Quantized at 400 bps," ICASSP, Salt Lake City, UT, pp. 2.2.1-4, 2001.
13. M. K. Omar, M. Hasegawa-Johnson and S. E. Levinson, "Gaussian Mixture Models of Phonetic Boundaries for Speech Recognition," ASRU 2001, pp. 33-6.
14. M. K. Omar and M. Hasegawa-Johnson, "Maximum Mutual Information Based Acoustic Features Representation of Phonological Features for Speech Recognition," ICASSP, May 2002, I:81-84.
15. M. Omar, K. Chen, M. Hasegawa-Johnson and V. Brandman, "An Evaluation of using Mutual Information for Selection of Acoustic-Features Representation of Phonemes for Speech Recognition," Interspeech, Denver, CO, September 2002, pp. 2129-2132.
16. Yanli Zheng and Mark Hasegawa-Johnson, "Acoustic segmentation using switching state Kalman Filter," ICASSP 2003 (45% acceptance), April 2003, I:752-755.
17. Tong Zhang, Mark Hasegawa-Johnson, and Stephen E. Levinson, "Mental State Detection of Dialogue System Users via Spoken Language," ISCA/IEEE Workshop on Spontaneous Speech Processing and Recognition (SSPR), April 2003, MAP17.1-4.
18. J. Cole, H. Choi, H. Kim, and M. Hasegawa-Johnson, "The Effect of Accent on the Acoustic Cues to Stop Voicing in Radio News Speech," Proceedings of the International Congress of Phonetic Sciences, pp. 2665-8, Barcelona, Spain, August, 2003.
19. K. Chen, M. Hasegawa-Johnson, A. Cohen, S. Borys, and J. Cole, "Prosody Dependent Speech Recognition with Explicit Duration Modelling at Intonational Phrase Boundaries." Interspeech, September, 2003, 393-396.
20. M. K. Omar and M. Hasegawa-Johnson, "Maximum Conditional Mutual Information Projection For Speech Recognition," Interspeech, September, 2003, 505-508.
21. M. K. Omar and M. Hasegawa-Johnson, "Non-Linear Maximum Likelihood Feature Transformation For Speech Recognition," Interspeech, September, 2003, 2497-2500.
22. Y. Zheng and M. Hasegawa-Johnson, "Particle Filtering Approach to Bayesian Formant Tracking," IEEE Workshop on Statistical Signal Processing, September, 2003, 581-584.
23. M. Omar and M. Hasegawa-Johnson, "Strong-Sense Class-Dependent Features for Statistical Recognition," IEEE Workshop on Statistical Signal Processing, St. Louis, MO, 2003, 473-476.
24. Mark Hasegawa-Johnson, "Bayesian Learning for Models of Human Speech Perception," IEEE Workshop on Statistical Signal Processing, St. Louis, MO, 2003, 393-396. (invited paper)
25. M. Omar and M. Hasegawa-Johnson, "Non-Linear Independent Component Analysis for Speech Recognition," International Conference on Computer, Communication and Control Technologies (CCCT '03), pp. 128-31, 2003.
26. Tong Zhang, Mark Hasegawa-Johnson, and Stephen E. Levinson, "An empathic-tutoring system using spoken language," Australian conference on computer-human interaction (OZCHI 2003), pp. 498-501.
27. Ken Chen and Mark Hasegawa-Johnson, "Improving the robustness of prosody dependent language modeling based on prosody syntax cross-correlation." ASRU, 2003, pp. 435-440.
28. Yuexi Ren, Mark Hasegawa-Johnson and Stephen E. Levinson. Semantic analysis for a speech user interface in an intelligent-tutoring system., Intl. Conf. on Intelligent User Interfaces. Madeira, Portugal, 2004, pp. 313-315.
29. Yuexi Ren, Sung-Suk Kim, Mark Hasegawa-Johnson, and Jennifer Cole, "Speaker-Independent Automatic Detection of Pitch Accent," SpeechProsody 2004, Nara, Japan, March 2004, 521-524.
30. Heejin Kim, Jennifer Cole, Hansook Choi, and Mark Hasegawa-Johnson, "The Effect of Accent on Acoustic Cues to Stop Voicing and Place of Articulation in Radio News Speech," SpeechProsody 2004, Nara, Japan, March 2004, 29-32.

31. Ken Chen and Mark Hasegawa-Johnson, "How Prosody Improves Word Recognition," *SpeechProsody 2004*, Nara, Japan, March 2004, 583-586.
32. Sandra Chavarria, Taejin Yoon, Jennifer Cole, and Mark Hasegawa-Johnson, "Acoustic differentiation of ip and IP boundary levels: Comparison of L- and L-L% in the Switchboard corpus," *Speech Prosody 2004*, Nara, Japan, March 2004, 333-336.
33. Ken Chen, Mark Hasegawa-Johnson, Aaron Cohen, and Jennifer Cole, "A Maximum Likelihood Prosody Recognizer," *SpeechProsody 2004*, Nara, Japan, March 2004, 509-512.
34. Ken Chen and Mark Hasegawa-Johnson, "An Automatic Prosody Labeling System Using ANN-Based Syntactic-Prosodic Model and GMM-Based Acoustic-Prosodic Model," *ICASSP I:509-512*, 2004.
35. Ameya Deoras and Mark Hasegawa-Johnson, "A Factorial HMM Approach to Simultaneous Recognition of Isolated Digits Spoken by Multiple Talkers on One Audio Channel," *ICASSP I:861-4*, 2004.
36. Yanli Zheng and Mark Hasegawa-Johnson, "Formant Tracking by Mixture State Particle Filter," *ICASSP I:565-8*, 2004.
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