

CURRICULUM VITAE

Monita Chatterjee

Associate Professor, Hearing and Speech Sciences
University of Maryland, College Park, MD 20742

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EDUCATION

- 1995 Ph. D. Syracuse University, N.Y.
Institute for Sensory Research
Department of Bioengineering and Neuroscience
Dissertation: "Aspects of Frequency and Intensity Coding in the Cochlea"
(Advisor: Jozef J. Zwislocki, Co-Advisor: Robert L. Smith)
- 1987 B.E.E. (Bachelor of Electrical Engineering) Jadavpur University, Kolkata, India

EMPLOYMENT BACKGROUND

PRIMARY APPOINTMENTS

1. 2009- Present: Associate Professor, Department of Hearing and Speech Sciences, University of Maryland at College Park, MD
2. 2005-2009: Assistant Professor, Department of Hearing and Speech Sciences, University of Maryland at College Park, MD
3. 2003 – 2004: Scientist II, Department of Auditory Implants and Perception, House Ear Institute, Los Angeles, CA.
4. 1998-2003: Scientist I, Department of Auditory Implants and Perception, House Ear Institute, Los Angeles, CA
5. 1994-1998: Post-doc, Department of Auditory Implants and Perception, House Ear Institute, Los Angeles, CA
6. 1988-1994: Graduate Research Assistant, Institute for Sensory Research, Syracuse University, Syracuse, NY

OTHER AFFILIATIONS

1. 2005 – present: Faculty Member, Center for the Comparative Evolutionary Biology of Hearing (C-CEBH), University of Maryland, College Park, MD
2. 2005 –present: Faculty Member, Neuroscience and Cognitive Science Program (NACS), University of Maryland, College Park, MD

3. 2008 – present: Affiliate Member of the Graduate Faculty, Department of Bioengineering, University of Maryland, College Park, MD
4. March 2011: Visiting Scientist, House Ear Institute, Los Angeles, CA
5. April – May 2011: Visiting Faculty, Katholieke Universiteit, Leuven, BE.

GRANTS

1. 5/1/1998- 4/30/2001 **Principal Investigator** “Auditory Implant Perception in Ongoing Backgrounds,” NIH NIDCD R03 DC03519 grant: \$150,000 total direct costs.
2. 1/1/1999-12/31/2001 **Co-Investigator** (PI: Robert V. Shannon) “Speech Processors for Auditory Prostheses,” NIH NIDCD N01 DC92100 contract: \$901,701 direct costs.
3. 4/1/2002 – 3/31/2009 **Principal Investigator**, “Complex Stimulus Perception with Cochlear Implants,” NIH NIDCD R01 DC04786 grant: \$750,000 direct costs.
4. 6/20/2008 – 1/31//2012 **Principal Investigator**, “Complex Auditory Processing with Cochlear Implants,” NIH NIDCD R01 DC 04786 grant: \$637,500 direct costs.
5. 1/30/2009 – 1/29/2010 **Co-Investigator** (PI: Katrina McLeod) “Temporal Dynamics of Responses to Electrical Stimulation: Information Transfer from the Auditory Nerve to Brainstem Neurons” NOHR grant: \$20,000 direct costs.
6. 8/1/2009 – 5/31/2011 **Principal Investigator**, “Complex Auditory Processing with Cochlear Implants” NIDCD ARRA (ACC) Supplement R01DC004786-08S1: \$105,388 direct costs.
7. 7/11/2011 – 6/30/2013 **Principal Investigator**, “Voice pitch processing by normally hearing and cochlear-implanted children” NIDCD R21 DC011905: \$275,000 direct costs.

HONORS/ AWARDS

1. 1992: Di Carlo Fellowship, Syracuse University.
2. 1994-1995 Doctoral Prize, Syracuse University
3. 2009: University Research Leader, University of Maryland, College Park

PUBLICATIONS (Peer-reviewed)

1. Chatterjee, M. and Smith, R. L. (1993) Physiological overshoot and the compound action potential. *Hear. Res.* 69: 45-54.
2. Chatterjee, M. and Zwislocki, J. J. (1997) Cochlear mechanisms of intensity and frequency coding: I. The place code for pitch. *Hear. Res.* 111: 65-75.

3. McCreery, D. B., Shannon, R. V., Moore, J. K., and Chatterjee, M. (1998) Accessing the tonotopic organization of the ventral cochlear nucleus by intranuclear microstimulation. *IEEE Trans. Rehabil. Eng.* 6(4): 391-399.
4. Chatterjee, M., Fu, Q-J, and Shannon, R. V. (1998) Within-channel gap detection using dissimilar markers in cochlear implant listeners. *J. Acoust. Soc. Am.* 103(5): 2515-2519.
5. Chatterjee, M. and Shannon, R. V. (1998) Forward masked excitation patterns in multielectrode electrical stimulation. *J. Acoust. Soc. Am.* 103(5): 2565-2572.
6. Chatterjee, M. and Zwislocki, J. J. (1998) Cochlear mechanisms of frequency and intensity coding. II. Dynamic range and the code for loudness. *Hear. Res.* 124:170-181.
7. Chatterjee, M. (1999) Effects of stimulation mode on threshold and loudness growth in multielectrode implants. *J. Acoust. Soc. Am.* 105(2 Pt 1): 850-860.
8. Chatterjee, M. (1999) Temporal mechanisms underlying recovery from forward masking in multielectrode implant listeners. *J. Acoust. Soc. Am.* 105(3): 1853-1863.
9. Chatterjee, M., Fu, Q.-J., and Shannon, R. V. (2000) Effects of phase duration and electrode separation on loudness growth in cochlear implant listeners. *J. Acoust. Soc. Am.* 107(3): 1637-1644.
10. Chatterjee, M., and Robert, M. E. (2001) Noise enhances modulation sensitivity in cochlear implant listeners: stochastic resonance in a prosthetic sensory system? *J. Assoc. Res. Otolaryngol.* 2(2): 159-171.
11. Chatterjee, M. (2003) Modulation masking in cochlear implant listeners: envelope vs. tonotopic components. *J. Acoust. Soc. Am.* 113(4): 2042-2053.
12. Abdala, C. A. and Chatterjee, M. (2003) Maturation of cochlear nonlinearity as measured by distortion product otoacoustic emission (DPOAE) suppression growth in humans. *J. Acoust. Soc. Am.* 114(2): 932-943.
13. Chatterjee, M. and Oba, S. I. (2004) Across- and within-channel envelope interactions in cochlear implant listeners. *J. Assoc. Res. Otolaryngol.* 5(4): 360-375.
14. Chatterjee, M. and Oba, S. I. (2005) Noise improves modulation detection by cochlear implant listeners at moderate carrier levels. *J. Acoust. Soc. Am.* 118(2): 993-1002.
15. Chatterjee, M., Galvin, J. J., Fu, Q.J., and Shannon, R. V. (2006) Effects of stimulation mode, level, and location on forward-masked excitation patterns in cochlear implant patients. *J. Assoc. Res. Otolaryngol.* 7(1):15-25 (Epub: Nov. 2005).
16. Chatterjee, M., Sarampalis, A. and Oba, S. I. (2006) Auditory stream segregation with cochlear implants: a preliminary report. *Hear. Res.* 222: 100-107.
17. Chatterjee, M. and Peng, S.C. (2008) Processing F0 with cochlear implants: Modulation

frequency discrimination and speech intonation recognition. *Hear. Res.* 235(1-2):143-56. (Epub: Nov 2007).

18. Schwartz, K.C., Chatterjee, M. and Gordon-Salant, S. (2008) Recognition of spectrally degraded phonemes by younger, middle-aged and older normal-hearing listeners. *J. Acoust. Soc. Am.* 124(6): 3972-3988.
19. Peng, S.C., Lu, N. and Chatterjee, M. (2009) Effects of cooperating and conflicting cues on speech intonation recognition by cochlear implant users and normal hearing listeners. *Audiol. & Neurotol.* 14(5):327-337
20. Chatterjee, M. and Yu, J. (2010) A relation between electrode discrimination and amplitude modulation detection by cochlear implant listeners. *J Acoust Soc Am* 127(1): 415 – 426
21. Chatterjee, M., Peredo, F., Nelson, D., Baskent, D. (2010) Recognition of interrupted sentences under conditions of spectral degradation. *J Acoust Soc Am* 127(2): EL37-41
22. Baskent, D. and Chatterjee, M. (2010) Recognition of temporally interrupted and spectrally degraded sentences with additional unprocessed low-frequency speech. *Hearing Res.* 270(1-2), 127-133.
23. Chatterjee, M. and Oberzut, C. (2011) Detection and rate discrimination of amplitude modulation in electric hearing. *J. Acoust. Soc. Am.* 130(3), 1567 – 1580.
24. Schwartz, K.C. and Chatterjee, M. (2011) Gender identification in younger and older adults: use of spectral and temporal cues. *Conditionally Accepted, Ear and Hearing*

Manuscripts Submitted

1. Winn, Chatterjee, Idsardi (2011) The use of acoustic cues for phonetic identification: Effects of spectral degradation and electric hearing. *Revision in review, JASA.*
2. Deroche, M. Zion, D.R., Schurman, J. R, Chatterjee, M. (2011) Sensitivity of school-aged children to pitch-related cues. *Revision in process, JASA.*
3. Newman, R. and Chatterjee, M. (2011) Toddlers' recognition of noise-vocoded speech. *Submitted to J.A.S.A.*

Monographs, Reports, and Extension Publications

1. Chatterjee, M. (1994) Aspects of intensity and frequency coding in the cochlea. PhD Dissertation, Syracuse University and ISR Special Report 31.

Book Reviews, Other Articles, and Notes

1. Zwislocki, J.J. and Chatterjee, M. (1995) On the neural code for loudness and its cochlear correlates. In: *Advances in Hearing Research*, eds. Manley et al., World Scientific, Singapore.
2. Friesen, L.F., Fu, Q. J., Chatterjee, M. and Galvin, J.J. (2001) Cochlear implant research: overview, current and future trends. *ASHA Div. 6 Newsletter*.
3. Chatterjee, M. (2002). Cochlear Implants: Bridging Auditory Neuroscience and Technology, *The Hearing Review*, April 2002.
4. Chatterjee M. and Galvin, J. J. III (2004) Cochlear Implants For Young Children (Invited Book Review). *J. Acoust. Soc. Am.* 115(4): 1385-1386.

INVITED TALKS (since 2000)

1. Chatterjee M. (9/26/2000) "Auditory Processing in Normal and Prosthetic Hearing". National Center for Biological Sciences, Bangalore, India.
2. Chatterjee, M. (8/15/2001) "Auditory Processing with Cochlear Implants." Smith-Kettlewell Eye Research Institute, San Francisco, CA.
3. Chatterjee, M. (3/22/2002) "Modulation detection in noise by cochlear implant listeners." Washington University Medical School Dept. of Otolaryngology, St. Louis, MO.
4. Chatterjee, M. (1/31/2003) "Amplitude-modulation detection by cochlear implant listeners: effects of competing envelopes". Department of Bioengineering Seminar, Syracuse University, Syracuse, NY.
5. Chatterjee, M. (2/2/2003) "Channel-interaction in cochlear implants: dynamic vs. steady-state stimuli" Department of Communication Sciences and Disorders, Northwestern University, Evanston, IL.
6. Chatterjee, M. (4/30/2003) The "Zwislocki Effect" in my work with cochlear implants. 2003 Spring meeting of the Acoustical Society of America, Session: "Honoring the Contributions of Jozef Zwislocki", Nashville, TN.
7. Chatterjee, M. (8/2003) "Effects of noise on envelope processing by cochlear implant listeners: from masking to enhancement" 2003 Conference on Implantable Auditory Prostheses, Asilomar, CA.
8. Chatterjee, M. (12/15/2003) "How temporal and spectral aspects of stimuli shape perceptual channels in cochlear implants" Department of Hearing and Speech Sciences seminar, University of Maryland, College Park, MD.

9. Chatterjee M (9/20/2004). "Cross-channel envelope interactions in cochlear implant listeners". Berkeley Ear club, University of California at Berkeley, CA.
10. Chatterjee M. (11/24/2004) "Encoding sound for cochlear implants" Indian Institute of Technology Kanpur, Uttar Pradesh, India
11. Chatterjee M. (11/22/2004) "Encoding sound for cochlear implants". National Brain Research Centre, Manesar, Haryana, India
12. Chatterjee M. (8/1/2005) "Across-channel envelope interactions in cochlear implant listeners". 2005 Conference on Implantable Auditory Prostheses, Asilomar, CA.
13. Chatterjee, M. (10/14/2005) "Across-channel interactions in cochlear implant listeners: effects of envelope, place and loudness coding" Dept. of Hearing, Speech and Language Sciences, Gallaudet University, Washington, DC.
14. Chatterjee, M. (04/05/2006) "Listening to multiple channels with a cochlear implant: interactions in envelope, place, and loudness domains", DeVault Laboratory Colloquium, Dept. of Otolaryngology, Indiana University School of Medicine, Indianapolis, IN.
15. Chatterjee, M. (05/01/2006) "Listening to multiple channels with cochlear implants", Department of Otolaryngology Head and Neck Surgery at Johns Hopkins University School of Medicine, Baltimore, MD.
16. Chatterjee, M. (1/6/2007) "Cochlear implants: from silence to sound" National Council of Education Bengal, Kolkata, India.
17. Chatterjee, M. and Peng, S.C. (7/20/2007) "Processing fundamental frequency with cochlear implants: psychophysics and speech intonation". 2007 Conference on Implantable Auditory Prostheses, Lake Tahoe, CA.
18. Chatterjee, M. (11/14/2007) "Cochlear Implants: Manufactured Sound" Acoustical Society of America DC Chapter Meeting, American Center for Physics, College Park, MD.
19. Chatterjee, M. (12/05/2007) "Spectro-temporal resolution in cochlear implant listeners" Kresge Hearing Research Institute, University of Michigan, Ann Arbor, MI.
20. Chatterjee, M. (9/26/2008) "Spectral and temporal resolution in electrical hearing, and implications for speech and music perception by cochlear implant listeners." Annual Convention of the Pennsylvania Academy of Audiology, Harrisburg, PA.
21. Chatterjee, M (12/05/2008) "Cochlear Implants" invited lecture to AuD students at Salus University, Elkins Park, PA.
22. Chatterjee, M (5/29/2009) "Temporal Pattern Processing With Cochlear Implants", Neurosciences Sensorinelles, Comportement, Cognition laboratory, Universite Claude Bernard – CNRS, Lyon, France.

23. Chatterjee, M (6/3/2009) “Complex Signal Processing With Cochlear Implants” Division of Experimental Otorhinolaryngology (Dept. Neurosciences), University of Leuven, Leuven, Belgium.
24. Chatterjee, M. (10/21/2009) “Processing Voice Pitch Changes with Cochlear Implants” City University of New York Graduate Center, New York, NY.
25. Chatterjee, M. (2/24/2010) “Introduction to Cochlear Implants” NSSHLA meeting, University of Maryland, College Park
26. Chatterjee, M. (4/15/2010) “The Music of Speech, and Electrical Hearing” C-CEBH-NIDCD joint meeting, University of Maryland, College Park.
27. Chatterjee, M., Peng, S.C., Wawroski, L.R., Oberzut, C. (5/1/2010) “Voice pitch processing with cochlear implants.” 2010 Southern Biomedical Engineering Conference, Fischell Dept of Bioengineering, Univ. of Maryland, College Park.
28. Chatterjee, M. (10/28/2010) “Listening with cochlear implants: Voice pitch, prosody, and more”. Boys’ Town National Research Hospital, Omaha, NE.
29. Chatterjee, M. (11/19/2010) “Cochlear Implants” State of the Science Workshop: Sensory and Communication Impairment organized by the University of Pittsburgh and Walter Reed Army Medical Center, National Intrepid Center of Excellence, Navy Campus, Bethesda, MD.
30. Chatterjee, M. (12/10/2010) “Voice pitch and speech intonation processing with cochlear implants”, Rotman Research Institute, Toronto, Ontario, CA.
31. Chatterjee, M. (05/02/2011) “Voice pitch processing with cochlear implants” Auditory Seminar, Otorhinolaryngology Dept., University of Groningen Medical Center, Groningen, NL.
32. Chatterjee, M., Peng, S.-C., Oberzut, C., Lu, N., Lin, Y.-S. (7/28/11) “Complex pitch patterns, intonation and lexical tones: Results in adults and children with CIs” 2011 Conference on Implantable Auditory Prostheses, Asilomar, Pacific Grove, CA.

SERVICE

a. Professional

i. Offices and committee memberships held in professional organizations

- 2000: Local committee member in charge of registration, Fall 2000 meeting of the Acoustical Society of America.
- 2001-2004: Elected member, Technical Committee, Psychological and Physiological Acoustics, Acoustical Society of America.
- 2002- 2003: Member, Committee on ANSI standard on loudness (Chair: Rhona Hellman).
- 2003-2005: Invited member, Steering Committee, 2005 Conference on Implantable Auditory Prostheses, Asilomar, Pacific Grove, CA.

- 2005: Chair, Committee on Young Investigator Awards, Conference on Implantable Auditory Prostheses, Asilomar, Pacific Grove, CA.
- 2006-2007: Invited member, Steering Committee, 2007 Conference on Implantable Auditory Prostheses, Asilomar, Pacific Grove, CA.
- 2006-2009: Nominated to ARO Publications Committee.
- 2009: Member, Technical Program Organization Committee, Acoustical Society of America
- 2010: Elected to Psychophysics and Physiology Technical Committee, Acoustical Society of America
- 2009-2011: Invited member, Steering committee, 2011 Conference on Implantable Auditory Prostheses, Asilomar, Pacific Grove, CA
- 2011 – 2013: Elected Scientific Chair, 2013 Conference on Implantable Auditory Prostheses.

ii. Reviewing activities for agencies

- Grant reviewer, National Institutes of Health (NIDCD):
 - a) NIDCD Special Emphasis Panel, Program Project grant, 1999
 - b) NIDCD Special Emphasis Panel ZDC1 SRB-A (40) for R03 reviews, April 2004
 - c) NIDCD Special Emphasis Panel ZDC1 SRB-A (40) for R03 reviews, July 2004
 - d) NIDCD Special Emphasis Panel to review RFA-DC-04-001 applications, May, 2005
 - e) NIDCD Special Emphasis Panel to review R01 applications, July, 2005
 - f) NIDCD Special Emphasis Panel/Scientific Review Group 2006/01 ZDC1 SRB-R (31), October, 2005
 - g) NIDCD Special Emphasis Panel/Scientific Review Group 2007/01 ZDC1 SRB-S (02), September, 2006
 - h) NIDCD SBIR: EAR Study Section ZRG1 IFCN-G 10, March, 2007
 - i) NIDCD Contract Proposal Review Panel ZDC1 SRB O15, May, 2007
 - j) NIH SBIR: ETTN Study Section ZRG1 ETTN E 10, October 22, 2008
 - k) NIDCD Scientific Review Group ZDC1 SRB-S 02 (Training Grant), January 09, 2009.
 - l) NIDCD CDRC Study Section, June 2009
 - m) NIDCD CDRC Special Emphasis Panel ZDC1 SRB-L (41), June 22, 2010
 - n) NIDCD Translational PAR ZDC1 SRB-Q (63), July 8, 2010
 - o) NIDCD CDRC Study Section, June 15-16, 2011
 - p) NIDCD CDRC Study Section, October, 2011
- Reviewer for Wellcome Trust [UK] grant applications, 2001, 2006
- Reviewer for the Medical Research Council [UK] grant application, 2008
- Reviewer for the Neuroscience & Mental Health Board (NMHB), Scientific (QQR) review of the MRC Cognition & Brain Sciences Unit (CBSU), Cambridge, UK, March 2009

Other committees, commissions, panels, etc.

1. Panelist and presenter, special session on loudness and noise-induced hearing loss, Audio Engineering Society Convention, San Francisco 1997 (organized by House Ear Institute's "Sound Partners" outreach program)

2. Invited presentation on Auditory Processing, Audio Engineering Society LA chapter meeting, 1999 (organized by House Ear Institute's "Sound Partners" outreach program)
3. External reviewer, Baker Fund grant proposal, Ohio University, Athens, Ohio, Feb-March 2005.

iii. International activities not listed above:

1. External reviewer for promotion and tenure, Catholic University of Leuven, Netherlands, 2000.
2. Project consultant, Low-Cost Cochlear Implant Project, Naval Science and Technology Labs, Visakhapatnam, India, 2006-2009.
3. Collaborator on EPSRC grant titled "Multiplicative and fractal noise coding for cochlear implants", PIs: Dr. Robert P. Morse, Aston University and Dr. Nigel Stocks, University of Warwick, UK, 2005-2008.
4. External reviewer for the University of Pretoria, application for rating by the National Research Foundation of South Africa, July 2006.
5. External reviewer for promotion and tenure, University of Groningen, Groningen, the Netherlands.

iv. Journal Editorship/Reviewing

- Reviewer for: *Journal of the Acoustical Society of America*, *Hearing Research*, *Ear and Hearing*, *Journal of the Association for Research in Otolaryngology (JARO)*, *Proceedings of the National Academy of Sciences*, *Perception*, *Med. & Biol. Eng. & Computing*, *SAIEEE*, *Journal of Neurophysiology*, *Journal of Rehabilitation Research and Development*, *Audiology & Neurotology*, *Trends in Amplification*, *Speech Communication*
- Assistant Editor, *Journal of the American Academy of Audiology*, 2002-2005
- Member, Editorial Board, *Trends in Amplification*, 2009 - Present
- Editor at Large/Associate Editor, *International Journal of Audiology*, 2009-Present
- Guest Editor, Cochlear Implants Section, *Ear and Hearing*, May 2010 – Present
- Section Editor, Cochlear Implants Section, *Ear and Hearing*, Jan 2011 - Present

TEACHING

HESP 407 Bases of Hearing Science
 Spring 2005 (enrollment 46)
 Spring 2007 (enrollment 40)
 Spring 2008 (enrollment 51)
 Spring 2009 (enrollment 38)

HESP 722 Psychoacoustics

Fall 2005 (enrollment 7)
Fall 2006 (enrollment 8)
Fall 2007 (enrollment 8)
Fall 2008 (enrollment 8)
Fall 2009 (enrollment 6)
Fall 2010 (enrollment 5)

HESP 848 Seminar in Cochlear Implants
Fall 2005 (enrollment 7)
Fall 2006 (enrollment 4)
Fall 2007 (enrollment 2)
Fall 2008 (enrollment 2)
Fall 2010 (enrollment 6)

HESP 639I/NACS 728I Seminar in Translational Neuroscience
Spring 2010 (enrollment 5)

MENTORING

A. Post-doctoral trainees:

1. Anastasios Sarampalis, 2003 – 2004. (Presently Lecturer, U. Groningen, NL)
2. Shu-Chen Peng, 2005 – 2007 (Presently Scientific Reviewer, US FDA)
3. Mickael Deroche, 2010 – Present
4. Daniel B. Hertz, 2010 – 2011.

B. PhD students advised:

1. Kara C. Schwartz, 2005 – 2010
2. Matthew B. Winn, 2008 – Present
3. William Bologna, 2010 – Present
4. Cherish Oberzut, 2008 – Present
5. Ting Zhang (Co-advisor): Graduated 2008.

C. AuD students advised:

1. Lauren Wawroski (graduated 2008)
2. Jian Yu (graduated 2009)
3. Kelly Hoffard (graduated 2009)
4. Marquitta Merkison (co-advisor) (graduated 2009)
5. Monica Dade (graduated 2009)
6. Bria Johnson (co-advisor) graduated 2009
6. Fabiola Peredo (graduated 2011)