NAME Fan-Gang Zeng, Ph.D.		POSITION TITLE Professor and Director of Research University of California, Irvine	
EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*			
INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Science and Technology of China	BS	1982	Electrical Engineering
Institute of Physiology, Academia Sinica	MS	1985	Biomedical Engineering
Syracuse University, Syracuse, New York	PhD	1990	Hearing Science

A. Positions and Honors

Professional Positions

1990-1998 Research Associate, Assistant Scientist, Associate Scientist and Director of Auditory Perception Laboratory, House Ear Institute, Los Angeles, California

1996-1998 Adjunct Associate Professor, Electrical Engineering, University of Southern California

1998-2000 Assistant, Associate Professor with tenure (1999), Hearing and Speech Sciences, Neuroscience and Cognitive Science Program, University of Maryland, College Park

2000-present Associate Professor (2000 step II with tenure; 2002 step III), Professor (2004 step II; 2007 step IV), Anatomy and Neurobiology, Biomedical Engineering, Cognitive Sciences, and Otolaryngology, University of California, Irvine

2000-present Research Director, Department of Otolaryngology – Head and Neck Surgery, University of California, Irvine

Honors and Professional Activities

1991 Doctoral Prize of Syracuse University

1997 Employee of the Year, House Ear Institute

2005 Innovation Award, University of California, Irvine

2007 Fellow of American Institute for Medical and Biological Engineering (AIMBE) "For outstanding contributions and leadership in cochlear implants and neuroengineering"

2008 Elected Member, Collegium Oto-Rhino-Larygologicum Amicitiae Sacrum

1990-present Ad hoc reviewer for 35 academic journals

1995-present Ad hoc reviewer for 30 funding agencies, including:

- National Science Foundation
- The Wellcome Trust, London, United Kingdom
- W.M. Keck Foundation, Los Angeles, California
- National Natural Science Foundation of China
- The Natural Sciences and Engineering Research Council of Canada

1998-2003 Member of NIH Integrated, Cognitive, and Functional Neuroscience Study Section 6

2003-2006 Member of NIH Auditory (AUD) Study Section, Washington, DC

2002-present Associate Editor, IEEE Transaction on Biomedical Engineering

2004-2007 Associate Editor, Journal of Speech, Language and Hearing Research

2005-present Member of Editorial Board and Guest Editor, Audiology and Neurotology

2006-2007 Guest Editor, Special Issue on Sensory Neuroprostheses, IEEE Trans. Biomed. Eng.

2006-2009 Associate Editor, Journal of Association for Research in Otolaryngology

2008-2011 Section Editor, Hearing Research

B. Selected peer-reviewed publications (out of 74 in chronological order)

1. Zeng FG and Turner CW (1990). Recognition of voiceless fricatives by normal and hearing-impaired subjects. Journal of Speech and Hearing Research 33, 440-449.
2. Zeng FG and Turner CW (1991). Binaural loudness balance in unilaterally-impaired listeners. The Quarterly Journal of Experimental Psychology 43(A), 565-583.

3. Zeng FG, Turner CW, and Relkin EM (1991). Recovery from prior stimulation. II. Effects on intensity discrimination. Hearing Research 55, 223-230.
4. Zeng FG and Shannon RV (1992). Loudness balance between electric and acoustic stimulation. Hearing Research 60, 231-235.
5. Zeng FG and Turner CW (1992). Intensity discrimination in forward masking. The Journal of Acoustical Society of America 92, 782-787.
6. Zeng FG (1994). Loudness growth in forward masking: Relation to intensity discrimination. The Journal of Acoustical Society of America 96, 2127-2132.
7. Zeng FG and Shannon RV (1994). Loudness-coding mechanisms inferred from electric stimulation of the human auditory system. Science 264, 564-566.
8. Shannon RV, Zeng FG, Wygonski J, Kamath V, and Ekelid M (1995). Speech recognition with primarily temporal cues. Science 270, 303-304.
9. Zeng FG (1995). Cochlear implants in China. Audiology 34, 61-75.
10. Zeng FG and Shannon RV (1995). Loudness of simple and complex stimuli in electric hearing. Annals of Otology, Rhinology and Laryngology 104 (suppl. 166), 235-238.
11. Zeng FG and Shannon RV (1995). Possible origins of the non-monotonic intensity discrimination functions in forward masking. Hearing Research 82, 216-224.
12. Abdala C, Sininger YS, Ekelid M, and Zeng FG (1996). Distortion product otoacoustic emission suppression tuning curves in human adults and neonates. Hearing Research 98, 38-53.
13. Zhang CY and Zeng FG (1997). Loudness of dynamic stimuli in acoustic and electric hearing. The Journal of Acoustical Society of America 102, 2925-2934.
14. Fu QJ, Zeng FG, Shannon RV, and Soli DS (1998). Importance of tonal envelope cues in Chinese speech recognition. The Journal of Acoustical Society of America 104, 505-510.
15. Shannon RV, Zeng FG, and Wygonski J (1998). Speech recognition with altered spectral distribution of envelope cues. The Journal of Acoustical Society of America 104, 2467-2476.
16. Wilson BS, Rebscher S, Zeng FG, Shannon RV, Loeb GE, Lawson DT, and Zerbi M (1998). Design for an inexpensive but effective cochlear implant. Otolaryngology - Head and Neck Surgery 118, 235-241.
17. Zeng FG, Galvin JJ, and Zhang CY (1998). Encoding loudness by electric stimulation of the auditory nerve. NeuroReport 9, 1845-1848.
18. Zeng FG and Galvin JJ (1999). Amplitude compression and phoneme recognition in cochlear implant listeners. Ear and Hearing 20, 60-73.
19. Zeng FG and Shannon RV (1999). Psychophysical laws revealed by electric hearing. NeuroReport 10, 1931-1935.
20. Zeng FG, Oba S, Garde S, Sininger YS, and Starr A (1999). Temporal and speech processing deficits in Auditory Neuropathy. NeuroReport 10(16), 3429-3435.
21. Fu QJ and Zeng FG (2000). Identification of temporal envelope cues in Chinese tone recognition. Asia Pacific Journal of Speech, Language and Hearing 5, 45-57.
22. Zeng FG, Fu QJ, and Morse RP (2000). Human hearing enhanced by noise. Brain Research 869(1-2), 251-255.
23. Zeng FG, Martino KM, Linthicum FH, and Soli SD (2000). Auditory perception in vestibular-neurectomy subjects. Hearing Research 142, 102-112.
24. Shkel AM, Liu J, Ikei C, and Zeng FG (2002). Feasibility Study on a Prototype of Vestibular Implant Using MEMS Gyroscopes. IEEE Sensors 1526-1531.
25. Zeng FG (2002). Temporal pitch in electric hearing. Hearing Research 174, 101-106.
26. Zeng FG, Grant G, Niparko J, Galvin JJ, Shannon RV, Opie J, and Segel P. (2002). Speech dynamic range and its effects on cochlear implant performance. The Journal of Acoustical Society of America 111, 377-386.
32. Behnam SE and Zeng FG (2003). Noise improves suprathreshold discrimination in cochlear-implant listeners. Hearing Research 186, 91-93.
33. Starr A, Michalewski H J, Zeng FG, Fujikawa S, Linthicum F, Kim CS, Winnier D, and Keats B (2003). Pathology and physiology of auditory neuropathy with a novel mutation in the MPZ gene (Tyr145Ser). Brain 126, 1604-1619.
34. Chen H.B. and Zeng F.G. (2004). Frequency modulation detection in cochlear implant subjects. The Journal of Acoustical Society of America 116(4), 2269–2277.

35. Kong YY, Cruz R, Jones JA and Zeng FG (2004). Music perception with temporal cues in acoustic and electric hearing. Ear and Hearing 25(2), 173-185.
36. Lan N, Nie K, Gao S, and Zeng FG (2004). A Novel Speech Processing Strategy of Cochlear Implants Incorporating Tonal Information. IEEE Transactions on Biomedical Engineering 51(5), 752-760.
37. Liu S, Del Rio E, Bradlow AR, and Zeng FG (2004). Clear Speech Perception in Acoustic and Electric Hearing. The Journal of Acoustical Society of America 116(4), 2374–2383.
38. Starr A, Michalewski HJ, Zeng FG, Kong YY, Beale P, Keats B, and Lesperance M (2004). A dominantly inherited progressive deafness affecting distal auditory nerve and hair cells. Journal of Association for Research in Otolaryngology 5, 411-426.
39. Stickney GS, Zeng FG, Assmann P, and Litovsky R (2004). Cochlear Implant Speech Recognition with Speech Maskers. The Journal of Acoustical Society of America 116(2), 1081-1091.
40. Wei C, Cao K, Chen XW, Zheng J, and Zeng FG (2004). Tone recognition and electrode discrimination in prelingually deafened cochlear-implant listeners. Chinese Journal of Otorhinolaryngology 39(2), 73-76.
41. Wei C, Cao K, and Zeng FG (2004). Mandarin tone recognition in cochlear-implant subjects. Hearing Research 197(1/2), 87-95.
42. Xu T, Bachman M, Zeng FG, and Li GP (2004). Polymeric Micro-Cantilever Array for Auditory Front-End Processing. Sensors and Actuators A 114, 176–182.
43. Zeng FG (2004). Trends in cochlear implants. Trends in Amplification 8(1), 1-34.
44. Zeng FG, Nie K, Liu S, Stickney GS, Del Rio E, Kong YY, and Chen HB (2004). On the Dichotomy in Auditory Perception between Temporal Envelope and Fine Structure Cues. The Journal of Acoustical Society of America 116(3), 1351-1354.
45. Zeng FG, Wei C, and Cao K (2004). Past, present, and future of cochlear implants. Chinese Journal of Otorhinolaryngology 39(10), 631-634.
46. Chen, H.B., Ishihara, Y.C. and Zeng, F-.G. (2005). Pitch discrimination of patterned electric stimulation. Journal of the Acoustical Society of America 118(1): 338-345.
47. Kong, Y.Y., Stickney, G., Zeng, F-.G. (2005). Speech and melody recognition in binaurally combined acoustic and electric hearing. Journal of the Acoustical Society of America 117(3): 1351-1361.
48. Michalewski, H.J., Starr, A., Nguyen, T.T., Kong, Y.Y.,Zeng, F.G. (2005). Auditory temporal processes in normal-hearing individuals and in patients with auditory neuropathy. Clinical Neurophysiology 116: 669–680.
49. Nie KB, Stickney GS, Zeng FG (2005). Encoding frequency modulation to improve cochlear implant performance in noise. IEEE Transactions on Biomedical Engineering 52(1), 64-73.
50. Stickney, G.S., Nie, K.B., Zeng, F-.G. (2005). Contribution of frequency modulation to speech recognition in noise. Journal of the Acoustical Society of America 118 (4): 2412-2420.
51. Vongphoe, M., Zeng, F-.G. (2005) Speaker recognition with temporal cues in acoustic and electric hearing. Journal of the Acoustical Society of America 118 (2): 1055-1061.
52. Zeng, G.F., Kong, Y.Y, Michalewski, H.J., Starr, A. (2005). Perceptual consequences of disrupted auditory nerve activity. Journal of Neurophysiology 93:3050-3063.
53. Zeng FG, Nie K, Stickney GS, Kong YY, Vongphoe M, Wei CG, and Cao KL (2005). Speech recognition with amplitude and frequency modulations. Proc Natl Acad Sci USA 102(7), 2293-2298. Epub 2005 Jan 27.
54. Bachman M, Zeng FG, Xu T, and Li GP (2006). Micromechanical resonator array for an implantable bionic ear. Audiology and Neurotology 11(2), 95-103.
55. Chang JE, Bai JY, Zeng FG. (2006). Unintelligible low-frequency sound enhances simulated cochlear-implant speech recognition in noise. IEEE Trans Biomed Eng. 2006 Dec;53(12 Pt 2):2598-2601. PMID: 17152439
56. Chung K, Zeng FG, and Acker KN (2006). Effects of directional microphone and adaptive multichannel noise reduction algorithm on cochlear implant performance. Journal of the Acoustical Society of America 120 (4): 2216-2227.
57. Kong, YY and Zeng, FG (2006). Temporal and spectral cues in Mandarin tone recognition. The Journal of Acoustical Society of America 120(5): 2830-2840.
58. Liu, S and Zeng, FG (2006). Temporal properties in clear speech perception. Journal of the Acoustical Society of America 120 (1): 424-432.

59. Luo H, Ni JT, Li ZH, Li XO, Zhang DR, Zeng FG, Chen L. (2006). Opposite patterns of hemisphere dominance for early auditory processing of lexical tones and consonants. Proc Natl Acad Sci U S A. 2006 Dec 11; 103 (51): 19558–19563. PMID: 17159136.
60. Nie, K.B., Barco, A., Zeng, F-G. (2006). Spectral and Temporal Cues in Cochlear Implant Speech Processing. Ear & Hearing 27, 208-217.
61. Shekel AM and Zeng FG (2006). An Electronic Prosthesis Mimicking the Dynamic Vestibular Function. Audiology and Neurotology 11(2), 113-122.
62. Tang Q, Liu S, and Zeng FG (2005). Loudness adaptation in acoustic and electric hearing. Journal of Association for Research in Otolaryngology 7, 59-70.
63. Zeng FG and Liu S. (2006). Clear speech perception in auditory neuropathy subjects. Journal of Speech, Language and Hearing Research 49(2), 367-380.
64. Bhattacharya A. and Zeng F.G. (2007) Companding to improve cochlear-implant speech recognition in speech-shaped noise. The Journal of Acoustical Society of America 122(2), 1079-1089.
65. Carroll J and Zeng FG. (2007) Fundamental frequency discrimination and speech perception in noise in cochlear implant simulations. Hear Res. 231(1-2): 42-53.
66. Stickney G.S., Chang J., Assmann P., and Zeng F.G. (2007). Effects of cochlear implant processing and fundamental frequency on the intelligibility of competing sentences. The Journal of Acoustical Society of America 122(2), 1069-1078.
67. Wei C, Cao K, Jin X, Chen X, Zeng FG. (2007). Psychophysical performance and Mandarin tone recognition in noise by cochlear implant users. Ear Hear 28(2 Suppl), 62S-65S.
68. Cullington HE and Zeng F.G. (2008). Speech recognition with varying numbers and types of competing talkers by normal-hearing, cochlear-implant, and implant simulation subjects. The Journal of Acoustical Society of America 123(1), 450-461.
69. Desai S., Stickney G.S., and Zeng F.G. (2008). Auditory-visual speech perception in normal-hearing and cochlear-implant listeners. The Journal of Acoustical Society of America 123(1), 428–440.
70. Dimitrijevic A, Michalewski HJ, Zeng FG, Pratt H, Starr A. Frequency changes in a continuous tone: auditory cortical potentials. Clinical Neurophysiology 2008 Sep;119(9):2111-2124.

C. Current Research Support

1. American Tinnitus Association, Zeng (PI). “Tinnitus Suppression”, 10/1/2008-9/30/2011. The objective is to use customized sounds to suppress, not mask, tinnitus.
2. 1R01-DC008858, Zeng (PI). "Interactions between Acoustic and Electric Hearing," 4/1/2007-3/31/2012. The objectives of this project are to use residual acoustic hearing as a basis to construct accurate pitch in cochlear implant users and to optimize performance in hearing aids and cochlear implants.
3. 2RO1 DC02267A2, Zeng (PI). "Signal processing in audition," 1/01/1995-12/31/2009. The objective of this project is to use advanced signal processing, particularly speech coding algorithms in telecommunication, to improve cochlear implant performance in noise.
4. 1P30 DC008369-01A1, Metherate (PI) and Zeng (core PI). "The Computing and Engineering Core," 5/1/2007-4/30/2012. One of the two cores to support UC Irvine Core Center for Hearing and Communication Research.
5. 2RO1 DC02618, Starr (PI) and Zeng (Co-PI). "Hearing deficits due to auditory neuropathy," 7/01/2002 –6/30/2010. The objective of this project is to characterize auditory functions in patients with auditory neuropathy.