

Amplification & Communication Research Laboratory

Dr. Chung has three main areas of research:

I. Optimization of hearing aid, cochlear implant and hearing protector performance



All hearing device users face similar challenges: Understanding speech in noise and listening comfort. Dr. Chung examines the effective signal processing strategies and technologies to enhance the performance of hearing devices and to improve the quality of lives of children and adults. She has a patent on how to utilize hearing aid front-end technologies to enhance cochlear implant performance with Dr. Fangang Zeng at University of California, Irvine.

Select Publication on the Topic

- Chung, K.** (2020). [Perceived sound quality of different signal processing algorithms by cochlear implant listeners in real-world acoustic environments](#). Journal of Communication Disorders, 83, 1-15.
- Faire, R.M., Ismail, F., Sterkens, J., Thunder, T. & **Chung, K.** (2016). [Effects of hearing loop systems on speech understanding and sound quality of normal-hearing listeners and hearing aid users](#). Hearing Review, 23(8), 28-42.
- Chung, K.** & Zeng, F.G. (2015). [Enhancing cochlear implants with hearing aid signal processing technologies](#). US Patent No. 8,942,815. Filed 2003.
- Chung, K.**, Nelson, LA, & Teske, M. (2012). [Noise reduction technologies implemented in head-worn preprocessors for improving cochlear implant performance in reverberant noise fields](#). Hearing Research, 291(1-2), 41-51.
- Chung, K.**, Tufts, J., & Nelson, L.A. (2009). [Modulation-based digital noise reduction for application to hearing protectors to reduce overall noise level and maintain speech intelligibility](#). Human Factors, 51(1), 78-89.
- Chung, K.** & Zeng, F-G. (2009). [Using adaptive directional microphones to enhance cochlear implant performance](#). Hearing Research, 250, 27-37.
- Chung, K.**, Killion, M.C. & Christensen, L.A. (2007). [Ranking hearing aid input-output functions for understanding low-level, conversational and high-level speech in multi-talker babble](#). Journal of Speech Language Hearing Research, 50, 1-19.
- Chung, K.** (2007). [Effective compression and noise reduction configurations for hearing protectors](#). Journal of Acoustical Society of America, 121(2), 1090-1101.
- Chung, K.**, Zeng, F-G & Acker, K.N. (2006). [Effects of directional microphone and adaptive multi-channel noise reduction algorithm on cochlear implant performance](#). Journal of Acoustical Society of America, 120(4), 2216-2227.
- Chung, K.** (2004). [Challenges and recent developments in hearing aids Part II: Feedback and occlusion effect reduction strategies, laser shell manufacturing processes and other signal processing technologies](#). Trends in Amplification, 8(4), 125-64.
- Chung, K.** (2004). [Challenges and recent developments in hearing aids Part I: Speech understanding in noise, microphone technologies and noise reduction algorithms](#). Trends in Amplification, 8(3), 83-124.
- Chung, K.**, Zeng, F-G & Waltzman, S. (2004). [Using hearing aid directional microphones and noise reduction algorithms to enhance cochlear implant performance](#). Acoustical Research Letters Online, 5(2), 56-61.