JAEWOOK LEE

April 6, 2018

Contact Information:

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Areas of Expertise:

Teaching and Research in Electrical Engineering, Digital Signal Processing, Biomedical Engineering, and Cochlear Implant.

Education History:

2009. 8 ~ 2017. 5 Ph.D., Electrical Engineering, Univ. of Texas at Dallas, Richardson, TX, USA

2003. 3 ~ 2005. 8 M.E., Information System Engineering, Dongseo University, Busan, S. Korea.

1995. 3 ~ 2002. 2 B.E., Electrical Engineering, Dongseo University, Busan, S. Korea.

Work Experience:

2013. 6 ~ 2017. 3 Research Assistant, Electrical Engineering, Univ. of Texas at Dallas, Richardson, USA.

2011. 6 ~ 2013. 5 Teaching Assistant, Electrical Engineering, Univ. of Texas at Dallas, Richardson, USA.

2005. 2 ~ 2007. 6 Professor, Information and Communication, Huree University, Ulaanbaatar, Mongolia.

2003. 3 ~ 2004.12 Research Assistant, Electrical Engineering, Dongseo University, Busan, S. Korea

Publications: Doctoral dissertation

1. **Jaewook Lee**, "Lombard effect in speech production by cochlear implant users: analysis, assessment and implications," Graduate program of Electrical Engineering, Univ. of Texas at Dallas, Richardson, USA, May, 2017. (Advisor: John H.L. Hansen)

Publications: Journal articles

1. **Jaewook Lee**, Hussnain Ali, Ali Ziaei, Emily A. Tobey, John H.L. Hansen, "The Lombard effect in speech production by cochlear implant users in noisy environments: a naturalistic study, *The Journal of the Acoustical Society of America*, Vol. 141 (4), pp. 2788-2799, April, 2017.
2. Oldooz Hazrati, **Jaewook Lee** and Philipos C. Loizou, "Blind binary masking for reverberation suppression in cochlear implants," *The Journal of the Acoustical Society of America*, Vol. 133 (3), pp. 1607-1614, March, 2013.

Publications: Conference proceedings

1. **Jaewook Lee,** Hussnain Ali, John H.L. Hansen, "Lombard effect perturbation pre-processing strategy for cochlear implant users," *in Proc. Conference on Implantable Auditory Prostheses* (**CIAP 2017**), Lake Tahoe, CA, July, 2017.

2. **Jaewook Lee,** Hussnain Ali, John H.L. Hansen, "Intelligibility enhancement of neutral speech based on Lombard effect modification with application to cochlear implant users," *in Proc. Annual Midwinter Meeting of Association for Research in Otolaryngology* (**ARO 2017**), Baltimore, MD, February, 2017

3. **Jaewook Lee**, Hussnain Ali, John H.L. Hansen, "The Lombard reflex and its influence on speech perception in adult cochlear implant users," *in Proc. International Conference on Cochlear Implants* (**CI 2016**), Toronto, Canada, May, 2016.

4. Juliana Saba, **Jaewook Lee**, Hussnain Ali, Son Ta, Tuan Nguyen, John H.L. Hansen, "Impulse suppression algorithm development of a compatible program for cochlear implant users," *in Proc. Meeting of the Acoustical Society of America* (**ASA 2016**), Salt Lake City, UT, April, 2016

5. **Jaewook Lee**, Hussnain Ali, Ali Ziaei, Emily A. Tobey, John H.L. Hansen, "Impact analysis of naturalistic environmental noise type on speech production for cochlear implant users versus normal hearing listeners," *in Proc. Conference on Implantable Auditory Prostheses* (**CIAP 2015**), Lake Tahoe, CA, July, 2015.

6. **Jaewook Lee**, Hussnain Ali, Ali Ziaei, John H.L. Hansen, "Analysis of speech and language communication for cochlear implant users in noisy Lombard conditions, *in Proc. International Conference on Acoustics, Speech, and Signal Processing* (**IEEE ICASSP 2015**), Brisbane, Australia, April, 2015.

7. **Jaewook Lee**, Hussnain Ali, Ali Ziaei, John H.L. Hansen, "Lombard effect based speech analysis across noisy environments for voice communications with cochlear implant sub- jects, *in Proc. Meeting of the Acoustical Society of America* (**ASA 2014**), Indianapolis, October, 2014.

8. Oldooz Hazrati, **Jaewook Lee** and Philipos C. Loizou, "Binary mask estimation for im- proved speech intelligibility in reverberant environments," *in Proc. Annual Conference of the International Speech Communication Association* (**INTERSPEECH 2012**), Portland, OR, September, 2012.

9. Oldooz Hazrati, **Jaewook Lee** and Philipos C. Loizou, "The contribution of vowel- consonant boundaries to speech recognition in reverberation by cochlear implant users," *in Proc. Annual Midwinter Meeting of Association for Research in Otolaryngology* (**ARO 2012**), San Diego, CA, February, 2012

Relevant Coursework: Graduate levels (2009~11)

- Digital signal processing
- Digital communication
- Image signal processing
- VHDL Hardware design
- Random Process
- Speech signal processing

Teaching courses: as a Lecturer (2005 ~ 07)

- Probability Theory
- Communication Theory
- Electromagnetics I & II
- RF Circuit Design Lab

Teaching courses: as a Teaching assistant (2011~13)

- Introduction to Electrical Engineering
- Electrical Network Analysis Lab
- Introduction to Digital Systems
- Electrical Network Analysis

Project Mentoring: as an Advisor (2005 ~ 07)

- Security garage door controlled by PIC16C73 microcontroller
- Vehicle speedometer using IR sensors
- Wireless DC motor controlling for CCD camera positioning

Project Mentoring: as a Supportive role (2014 ~ 15)

- The Bionic Ear: mechanical and electrical model/demonstration of the middle ear bones

Skills: Algorithm design of signal processing

- Audio and speech processing
- Noise and reverberation suppression
- Sound coding strategies for assistive hearing devices
- Machine learning and speech recognition system

Skills: Computer programming

- MATLAB and Lab VIEW
- Windows and Linux OS
- Or CAD and PSPICE
- Latex and MS Office
- VHDL and Verilog
- HMM and Praat toolkits

Skills: Languages available

- English, Mongolian, and Indonesian

References:

Dr. John H.L. Hansen
Associate Dean for Research and Professor, Univ. of Texas at Dallas, Richardson, TX, USA
Contact: john.hansen@utdallas.edu / 972-883-2910

Dr. Emily Tobey
Vice Provost and Professor, Univ. of Texas at Dallas, Richardson, TX, USA
Contact: etobey@utdallas.edu / 972-883-2791

Dr. Hee Chol Lee
Director of e-Learning, Midwest Univ., Wentzville, MO, USA
(former dean of the Computer Science department, Huree Univ., Ulaanbaatar, Mongolia)
Contact: hclee@midwest.edu / 636-327-4645

More references are available upon request.