



# Computational NeuroEngineering (CoNE) Laboratory @ HYU

BME Dept., Hanyang-U

## Lab Members (Jul. 2012)



### Professor, Lab. Director

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 Secretary of General Affairs of Korea Human Brain Mapping Society (KHBM)  
 Secretary of Korea Society of Bioelectromagnetics



### Han-Jeong Hwang

Postdoctoral Associate  
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**Research Interests:**  
 Brain-computer Interface (BCI), EEG, NIRS signal analysis



### Jeonghwan Lim

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**Research Interests:**  
 Brain computer interface, Mind-reading applications



### Chang-Hee Han

M.S. Candidate  
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**Research Interests:**  
 Brain-computer interface, Neural signal acquisition and processing



### Chang-Hee Han

Undergraduate R.A. (BME @ University of Rochester, USA)  
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**Research Interests:**  
 Brain-computer interface



### Sun-Ae Park

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**Research Interests:**  
 Brain-computer interface



### Do-Won Kim

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**Research Interests:**  
 Neuroimaging and brain signal analysis



### Mi Seon Shim

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**Research Interests:**  
 Neuroimaging and brain signal analysis



### Jeong-Youn Kim

M.S. Candidate  
 E-mail: [swjy3565@naver.com](mailto:swjy3565@naver.com)

**Research Interests:**  
 Brain signal and network analysis, Electrophysiology of brain



### Jeong-Youn Kim

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**Research Interests:**  
 Bioelectromagnetics, Dynamic neuroimaging

### Positions Available

#### Graduate Students

**Qualifications:** B.S. (or M.S.) degree in EE, BME, Physics, Psychology or related fields

**To apply:** Please e-mail a resume, brief statement of research to Dr. Chang-Hwan Im

## Activities

### Publications

More than 80 papers have been published in SCI(E)-indexed Journals (as of Jul. 2012)

#### Selected recent publication list

1. Han-Jeong Hwang, Jeong-Hwan Lim, Young-Jin Jung, Han Choi, Sang Woo Lee, and Chang-Hwan Im, "Development of an SSVEP-based BCI Spelling System Adopting a QWERTY-Style LED Keyboard," *J. Neurosci. Methods*, vol. 208, pp. 59-65, 2012.
2. Chang-Hwan Im, Ji-Hye Park, Misoen Shim, Won Hyuk Chang, and Yun-Hee Kim, "Evaluation of local electric fields generated by transcranial direct current stimulation (tDCS) with an extracranial reference electrode based on realistic 3D body modeling," *Phys. Med. Biol.*, vol. 57, pp. 2137-2150, 2012.
3. Jae-Hyun Cho, Hoon-Chul Kang, Young-Jin Jung, Yong-Ho Lee, Ki-Young Jung, Heung Dong Kim, and Chang-Hwan Im, "Localization of ictal onset zones in Lennox-Gastaut syndrome (LGS) based on information theoretical time delay analysis of intracranial electroencephalography (iEEG)," *Epilepsy Res.*, vol. 99, pp. 78-86, 2012.
4. Jae-Hyun Cho, Seung Bong Hong, Young-Jin Jung, Hoon-Chul Kang, Heung Dong Kim, Minal Suh, Ki-Young Jung, and Chang-Hwan Im, "Evaluation of algorithms for intracranial EEG (iEEG) source imaging of extended sources: feasibility of using iEEG source imaging for localizing epileptogenic zones in secondary generalized epilepsy," *Brain Topogr.*, vol. 24, pp. 91-104, 2011.
5. Do-Won Kim, Han-Jeong Hwang, Jeong-Hwan Lim, Yong-Ho Lee, Ki-Young Jung, and Chang-Hwan Im, "Classification of Selective Attention to Auditory Stimuli: Toward Vision-free Brain-Computer Interfacing," *J. Neurosci. Methods*, vol. 197, pp. 180-185, 2011.
6. Jun Sic Kim, Chang Hwan Im, Young Jin Jung, Eun Young Kim, Sang Kun Lee, and Chun Kee Chung, "Localization and propagation analysis for ictal source rhythm by electrocorticography," *NeuroImage*, vol. 52, pp. 1279-1288, 2010.
7. Seung-Hwan Lee, Do-Won Kim, Eun-Young Kim, Sangrae Kim, and Chang-Hwan Im, "Dysfunctional Gamma Band Activity during Face Structural Processing in Schizophrenia Patients," *Schizophr. Res.*, vol. 119, pp. 191-197, 2010.
8. Chang-Hwan Im, Young-Jin Jung, Seungduk Lee, Dalkwon Koh, Do-Won Kim, and Beop-Min Kim, "Estimation of Directional Coupling between Cortical Areas Using Near Infrared Spectroscopy (NIRS)," *Opt. Express*, vol. 18, no. 6, pp. 5730-5739, 2010.

### Awards

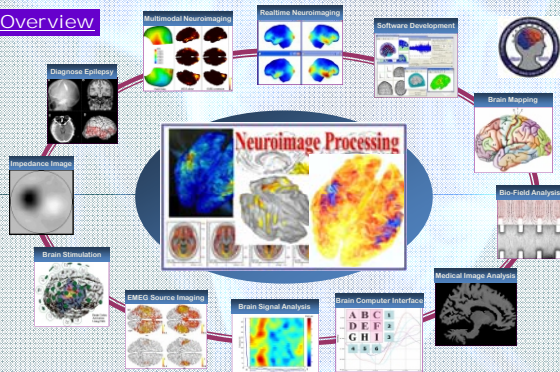


### Media Coverage



## Introduction

### Overview



### Laboratory Products

**BioEST**  
EEG/MEG source imaging software

**MCGAnal**  
Magnetocardiogram (MCG) analysis software

**Comets**  
Toolbox for 3D field simulation of tDCS

**CoNEEG**  
(Lab-made) Portable 8-ch EEG system

**CoNE-Stim**  
Multi-channel transcranial DC Stimulation System

## Laboratory History



### Alumni

- Young-Jin Jung (Ph.D., 2011) Florida International University, US
- Jae-Hyun Cho (M.S., 2012) Max Planck Institute, Germany
- Ji Hye Park (M.S., 2011) Institute of Medical Eng, Hanyang U.
- Huije Che (M.S., 2009) Korea Institute of Science & Technology
- Chany Lee (Ph.D., 2010, Co-Ad.) Korea University
- Kwang-Ok An (Ph.D., 2009, Co-Ad.) National Rehab. Center

<http://cone.hanyang.ac.kr>

