Il Yong Chun

EE Bldg., 465 Northwestern Ave., West Lafayette, IN 47907 (Email: chun.ilyong@gmail.com, Phone: 765-586-3511)

OBJECTIVE To seek postdoctoral or full-time scientist position in the medical imaging system engineering, particularly in MRI and X-ray CT

EDUCATION

Purdue University West Lafayette, IN, USA
Ph.D. Candidate in Electrical and Computer Engineering Aug. 2009 – Present
Advisors: Professor Thomas M. Talavage and Professor Ben Adcock

Korea University Seoul, South Korea
B.Eng. in Electrical Engineering Mar. 2002 – Feb. 2009

The University of Hong Kong Hong Kong, China
Exchange Student in Electrical and Electronic Engineering Aug. 2007 – May. 2008

WORK EXPERIENCE

Purdue University West Lafayette, IN, USA
Research Assistant (advisor: Prof. Thomas M. Talavage) Aug. 2010 – Present

- Compressed sensing (CS) MRI and X-ray CT
- Multiple-input multiple-output (MIMO) MRI using spatial beam-forming
- Diffusion tensor imaging (DTI) detection of white matter (WM) abnormalities due to accumulated head impacts (longitudinal study)
- Randomization hypothesis test with complete and incomplete pairs
- Fusion imaging between resting state functional MRI (rsfMRI) and DTI
- Development of processing and analysis pipeline for diffusion and susceptibility weighted MR images (DWI and SWI)

Teaching Assistant (advisor: Prof. Michael D. Zoltowski) Jan. 2011 – May 2011

- Signals and systems (ECE301)

Research Assistant (advisor: Prof. Michael G. Heinz) Aug. 2011 – May 2013

- Template-based peak detection in auditory signal

Samsung Advanced Institute of Technology (SAIT) Gyeonggi-do, South Korea
Graduate Intern (supervisor: Dr. Jung-Bae Kim) Jun. 2013 – Jul. 2013

- Multi-modal (ultrasonography – MRI) image registration using multiple mutual information

Neuroscience Research Institute (NRI) Incheon, South Korea
Research Intern and Lecturer (supervisor: Prof. Zang-Hee Cho) May 2013 – Jun. 2013

- Research: High-resolution positron emission tomography (PET) image reconstruction with sparsity regularization and structural image
- Lecture: An introduction to optimization

Intel Labs Hillsboro, OR, USA
Graduate Intern (supervisor: Dr. Willem M. Beltman) May 2011 – Jul. 2011

- Real-time frequency-domain blind source separation of convolutive speech mixtures using non-stationarity in mobile environment

Gangnam-gu and Yeongdeungpo-gu District Office Seoul, South Korea
Public Interest Service Personnel Jun. 2003 – Sep. 2005

- Administrator for the traffic offense vehicle server and regulation system
- Computer engineer

PUBLICATION

Journal Articles

Il Yong Chun, Song Noh, David J. Love, Thomas M. Talavage, Stephen Beckley, and Sherman J. Kisner, "Coil Precoding for LMMSE Image Reconstruction in MIMO SENSE MRI," submitted to *IEEE Trans. Signal Process.*, Mar. 2015.

Il Yong Chun, Ben Adcock, and Thomas M. Talavage, "Efficient compressed sensing SENSE pMRI reconstruction with joint sparsity promotion," submitted to *IEEE Trans. Med. Imag.*, Oct. 2014.

Il Yong Chun, Xianglun Mao, Eric L. Breedlove, Larry J. Leverenz, Eric A. Nauman, and Thomas M. Talavage, "DTI detection of longitudinal WM abnormalities due to accumulated head impacts," accepted to *Dev. Neuropsychol. Sp. Issues Spor. Concuss.*, Jul. 2014.

Conference Papers

Sumra Bari, **Il Yong Chun**, Larry J. Leverenz, Eric A. Nauman, and Thomas M. Talavage, "DTI Detection of WM Abnormalities using Randomization Test with Complete and Incomplete Pairs," submitted to *Proc.* 21^{st} *Org. for Hum. Brain Mapp. (OHBM)*, Jan. 2015.

Ikbeom Jang, **Il Yong Chun**, Larry J. Leverenz, Eric A. Nauman, and Thomas M. Talavage, "DWI Detection of WM Abnormality and Relation with Collision Events in High School Athletes," submitted to *Proc.* 21^{st} *Org. for Hum. Brain Mapp. (OHBM)*, Jan. 2015.

Ikbeom Jang, **Il Yong Chun**, Larry J. Leverenz, Eric A. Nauman, and Thomas M. Talavage, "Robust Detection of Axonal Abnormalities in High School Collision-Sport Athletes: Longitudinal Single Subject Analysis," *Proc.* 23^{rd} *Intl. Soc. Mag. Res. Med. (ISMRM)*, Nov. 2014.

Il Yong Chun, Ben Adcock, and Thomas M. Talavage, "Efficient compressed sensing SENSE parallel MRI reconstruction with joint sparsity promotion and mutual incoherence enhancement," *Proc.* 36^{th} *IEEE Eng. Med. Biol. Soc. (EMBS)*, Chicago, IL, Aug. 2014.

Il Yong Chun, Ben Adcock, and Thomas M. Talavage, "Non-convex compressed sensing CT reconstruction based on tensor discrete Fourier slice theorem," *Proc.* 36^{th} *IEEE Eng. Med. Biol. Soc. (EMBS)*, Chicago, IL, Aug. 2014.

Il Yong Chun, Allan Diaz, Sijia Qiu, Larry J. Leverenz, Eric A. Nauman, and Thomas M. Talavage, "DTI detection of symptomatic and asymptomatic injury due to repetitive hit exposures," 3^{rd} *IN Neuroimaging Symp.*, Bloomington, IN, Oct. 2013.

Il Yong Chun and Thomas M. Talavage, "Efficient compressed sensing statistical X-ray/CT reconstruction from fewer measurements," *Proc.* 12^{th} *Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med. (Fully 3D)*, Lake Tahoe, CA, Jun. 2013.

Il Yong Chun, Allan Diaz, Xiaodong Li, Yun Jang Jin, Larry J. Leverenz, Eric A. Nauman, and Thomas M. Talavage, "DTI detection of symptomatic and asymptomatic injury due to repetitive head blows," *Proc.* 19^{th} *Org. for Hum. Brain Mapp. (OHBM)*, Seattle, WA, Jun. 2013.

Il Yong Chun and Thomas M. Talavage, "Fast non-convex statistical compressed sensing MRI reconstruction based on approximated $Lp(0 < p < 1)$-quasi-norm with fewer measurements than using $L1$-norm," *Proc.* 21^{st} *Intl. Soc. Mag. Res. Med. (ISMRM)*, Salt Lake City, UT, Apr. 2013.

Il Yong Chun and Thomas M. Talavage, "Edge-preserving non-iterative MAP SENSE MRI reconstruction," *Proc.* 21^{st} *Intl. Soc. Mag. Res. Med. (ISMRM)*, Salt Lake City, UT, Apr. 2013.

Il Yong Chun and Thomas M. Talavage, "Sparse Tikhonov-regularized SENSE MRI reconstruction," *Proc.* 21^{st} *Intl. Soc. Mag. Res. Med. (ISMRM)*, Salt Lake City, UT, Apr. 2013.

Il Yong Chun, Allan Diaz, Yun Jang Jin, Xiaodong Li, Larry J. Leverenz, Eric A. Nauman, and Thomas M. Talavage, "Robust detection of progressive white matter abnormalities in mTBI using DW-MRI," *Proc.* 21^{st} *Intl. Soc. Mag. Res. Med. (ISMRM)*, Salt Lake City, UT, Apr. 2013.

HONORS AND AWARDS

Travel Funds for Purdue Engineering Ph.D. Candidates, Purdue Univ. Sep. 2014

Travel Funds, 12^{th} Fully 3D Jun. 2013

Magna Cum Laude Merit Award, 21^{st} ISMRM Apr. 2013

Award of Trainee (Educational) Stipend, 21^{st} ISMRM Apr. 2013

Semester High Honor, Korea Univ. Dec. 2005 – Jun. 2007

Honors Scholarship, Korea Univ. Feb. 2006 – Aug. 2007

ACTIVITIES

Purdue Electrical Engineering Korean Association (PEEKA) Purdue Univ.
Vice President Aug. 2011 – Aug. 2012

Academic Society of Communication Engineering Korea Univ.
President Mar. 2006 – Jun. 2007

VISA STATUS F-1

MILITARY SERVICE	Republic of Korea Army Private (Mandatory in South Korea)	Seoul, South Korea Jun. 2003 – Sep. 2005

COMPUTER SKILL MATLAB, C, and C^{++}