Il Yong Chun

Dept. of Math, 150 N. Univ. St., 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. in Electrical and Computer Engineering — Aug. 2009 – Aug. 2015
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
Postdoc. in Mathematics (supervisor: Prof. Ben Adcock) — Aug. 2015 – Present
- Compressed sensing (CS) theory and its application
- Model-based computational medical imaging
- Image analysis in neuroimaging

Purdue University — West Lafayette, IN, USA
Research Assistant (advisor: Prof. Thomas M. Talavage) — Aug. 2010 – May 2015
- Compressed sensing (CS) in MRI and X-ray CT
- Computational imaging and stochastic modeling in MRI and X-ray CT
- Image analysis in neuroimaging

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

PUBLICATION

<u>Journal Articles</u>

Il Yong Chun and Ben Adcock, "Compressed sensing and parallel acquisition," submitted to *IEEE Trans. Inf. Theory*, Jan. 2016.

Il Yong Chun, Song Noh, David J. Love, Thomas M. Talavage, Stephen Beckley, and Sherman J. Kisner, "Mean squared error (MSE)-based excitation pattern design for parallel transmit and receive SENSE MRI image reconstruction," *IEEE Trans. Comput. Imag.* (under review), Jan. 2016.

Il Yong Chun, Ben Adcock, and Thomas M. Talavage, "Efficient compressed sensing SENSE pMRI reconstruction with joint sparsity promotion," *IEEE Trans. Med. Imag.*, vol. 5, no. 1, pp. 354–368,

Jan. 2016.

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," *Dev. Neuropsychol.*, vol. 40, no. 2, pp. 92–97, May 2015.

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," in *Proc.* 21^{st} *Org. for Hum. Brain Mapp. (OHBM)*, Honolulu, HI, Jun. 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," in *Proc.* 21^{st} *Org. for Hum. Brain Mapp. (OHBM)*, Honolulu, HI, Jun. 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," in *Proc.* 23^{rd} *Intl. Soc. Mag. Res. Med. (ISMRM)*, Toronto, ON, May 2015.

Il Yong Chun, Ben Adcock, and Thomas M. Talavage, "Efficient compressed sensing SENSE parallel MRI reconstruction with joint sparsity promotion and mutual incoherence enhancement," in *Proc.* 36^{th} *IEEE Eng. Med. Biol. Soc. (EMBS)*, Chicago, IL, Aug. 2014, pp. 2424–2427.

Il Yong Chun, Ben Adcock, and Thomas M. Talavage, "Non-convex compressed sensing CT reconstruction based on tensor discrete Fourier slice theorem," in *Proc.* 36^{th} *IEEE Eng. Med. Biol. Soc. (EMBS)*, Chicago, IL, Aug. 2014, pp. 5141–5144.

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," in *Proc.* 12^{th} *Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med. (Fully 3D)*, Lake Tahoe, CA, Jun. 2013, pp. 30–33.

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," in *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," in *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," in *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," in *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," in *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)** Vice President	Purdue Univ. Aug. 2011 – Aug. 2012
	Academic Society of Communication Engineering President	Korea Univ. 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++	