

- OBJECTIVE** To seek a tenure-track faculty or a postdoctoral position in the signal processing area, particularly in medical and/or camera imaging
- EDUCATION**
- Purdue University** West Lafayette, IN, USA  
Ph.D. in Electrical and Computer Engineering Aug. 2009 – Aug. 2015
- Thesis title: Advances in medical imaging and image reconstruction
  - 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**
- The University of Michigan** Ann Arbor, MI, USA  
Postdoc. in Electrical Engineering and Computer Science May. 2016 – Present  
(supervisor: Prof. Jeffrey Fessler)
- Convolutional dictionary learning and its application to low-dose CT
  - Multi-sensor compressed sensing in light-field imaging
- Purdue University** West Lafayette, IN, USA  
Postdoc. in Mathematics (supervisor: Prof. Ben Adcock) Aug. 2015 – May. 2016
- Compressed sensing and parallel acquisition: theory
- Purdue University** West Lafayette, IN, USA  
Research Assistant (advisor: Prof. Thomas M. Talavage) Aug. 2010 – May 2015
- Compressed sensing 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)** Yongin, 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  
Lecturer and Research Intern (supervisor: Prof. Zang-Hee Cho) May 2013 – Jun. 2013
- Lecture: Introduction to optimization
  - Research: High-resolution positron emission tomography (PET) image reconstruction with sparsity regularization and structural image
- 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** Preprints
- Ikbeom Jang, **Il Yong Chun**, Eric L. Breedlove, Larry J. Leverenz, Eric A. Nauman, and Thomas M. Talavage, “Axonal impairment in high school football athletes: Longitudinal study using diffusion weighted imaging,” preprint, Nov. 2016.

## Submitted Journal Papers

**Il Yong Chun** and Jeffrey A. Fessler, “Convolutional dictionary learning: Acceleration and convergence,” submitted to *IEEE Trans. Image Process.*, Nov. 2016.

**Il Yong Chun** and Ben Adcock, “Uniform recovery from subgaussian multi-sensor measurements,” submitted to *Appl. Comput. Harmon. Anal.*, [Online] Available: <http://arxiv.org/abs/1610.05758>, Oct. 2016.

**Il Yong Chun** and Ben Adcock, “Compressed sensing and parallel acquisition,” under review for *IEEE Trans. Inf. Theory*, [Online] Available: <http://arxiv.org/abs/1601.06214>, Dec. 2016.

## Journal Papers

**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.*, vol. 2, no. 4, pp. 424–439, Dec. 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 & Abstracts

**Il Yong Chun**, Xuehang Zheng, Yong Long, and Jeffrey A. Fessler, “Efficient Sparse-view X-ray CT reconstruction using  $\ell^1$  regularization with learned sparsifying transform,” submitted to 14<sup>th</sup> *Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med. (Fully 3D)*, Jan. 2017.

Ikbeom Jang, **Il Yong Chun**, Sumra Bari, Yukai Zou, Eric A. Nauman, and Thomas M. Talavage, “DTI reveals persistent effects on white matter in football players with history of sports-related concussion,” 4<sup>th</sup> *IN Neuroimaging Symp.*, Bloomington, IN, Nov. 2016.

**Il Yong Chun** and Ben Adcock, “Compressed sensing and parallel acquisition: Optimal uniform and nonuniform recovery guarantees,” Shannon Centennial Symposium, Ann Arbor, MI, Sep. 2016.

**Il Yong Chun**, Chen Li, and Ben Adcock, “Sparsity and parallel acquisition: Optimal uniform and nonuniform recovery guarantees,” to appear in *Proc. 1<sup>st</sup> Workshop on Sparsity and Compressive Sensing in Multimedia (MM-SPARSE), IEEE Intl. Conf. on Multimedia and Expo (ICME) 2016*, [Online] Available: <http://arxiv.org/abs/1603.08050>, Seattle, WA, Jul. 2016.

**Il Yong Chun** and Ben Adcock, “Optimal sparse recovery for multi-sensor measurements,” to appear in *Proc. IEEE Inf. Theory Workshop (ITW) 2016*, [Online] Available: <http://arxiv.org/abs/1603.06934>, Cambridge, UK, Aug. 2016.

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<sup>st</sup> 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<sup>st</sup> 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<sup>rd</sup> 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<sup>th</sup> 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<sup>th</sup> 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<sup>rd</sup> 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<sup>th</sup> 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<sup>th</sup> 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  $L_p(0 < p < 1)$ -quasi-norm with fewer measurements than using  $L_1$ -norm,” in *Proc. 21<sup>st</sup> 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<sup>st</sup> 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<sup>st</sup> 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<sup>st</sup> Intl. Soc. Mag. Res. Med. (ISMRM)*, Salt Lake City, UT, Apr. 2013.

## HONORS AND AWARDS

<b>Travel Funds for Purdue Engineering Ph.D. Candidates</b> , Purdue Univ.	Sep. 2014
<b>Travel Funds</b> , 12 <sup>th</sup> Fully 3D	Jun. 2013
<b>Magna Cum Laude Merit Award</b> , 21 <sup>st</sup> ISMRM	Apr. 2013
<b>Award of Trainee (Educational) Stipend</b> , 21 <sup>st</sup> ISMRM	Apr. 2013
<b>Semester High Honor</b> , Korea Univ.	Dec. 2005 – Jun. 2007
<b>Honors Scholarship</b> , Korea Univ.	Feb. 2006 – Aug. 2007

## TALKS

### Seminar Presentations

“Compressed sensing and parallel acquisition”  
*Communications & signal processing seminars*, Univ. of Michigan-Ann Arbor Jan. 2016

### Conference Presentations

“DTI reveals persistent effects on white matter in football players with history of sports-related concussion”  
*4<sup>th</sup> IN Neuroimaging Symp.* Nov. 2016

“Optimal sparse recovery for multi-sensor measurements”  
*IEEE Inf. Theory Workshop (ITW) 2016* Aug. 2016

“Sparsity and parallel acquisition: Optimal uniform and nonuniform recovery guarantees”  
*1<sup>st</sup> Workshop on Sparsity and Compressive Sensing in Multimedia (MM-SPARSE)*  
*IEEE Intl. Conf. on Multimedia and Expo (ICME) 2016* Jul. 2016

“Robust detection of axonal abnormalities in high school collision-sport athletes: longitudinal single subject analysis”  
*23<sup>rd</sup> Intl. Soc. Mag. Res. Med. (ISMRM)* May 2015

“Non-convex compressed sensing CT reconstruction based on tensor discrete Fourier slice theorem”  
 36<sup>th</sup> *IEEE Eng. Med. Biol. Soc. (EMBS)* Aug. 2014

“Efficient compressed sensing statistical X-ray/CT reconstruction from fewer measurements”  
 12<sup>th</sup> *Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med. (Fully 3D)* Jun. 2013

“Robust detection of progressive white matter abnormalities in mTBI using DW-MRI”  
 21<sup>st</sup> *Intl. Soc. Mag. Res. Med. (ISMRM)* Apr. 2013

**PROFESSIONAL REVIEWER FOR THE FOLLOWING JOURNALS:**  
**EXPERIENCE**

- IEEE Transactions on Medical Imaging
- IEEE Transactions on Computational Imaging
- Medical Image Analysis

**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 Seoul, South Korea  
 Private (Mandatory in South Korea) Jun. 2003 – Sep. 2005

**COMPUTER SKILL** MATLAB, C, and C++