

Kisung You

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EDUCATION

Ph.D., Statistics August 2016 - expected May 2021
Department of Applied and Computational Mathematics and Statistics
University of Notre Dame, USA

- **Advisor:** Prof. Lizhen Lin, Prof. Ick Hoon Jin
- **Research Area:** Statistics on Riemannian Manifolds, Geometric and Topological Data Analysis, Bayesian Methods in Machine Learning and Network Analysis, Applications in Neuroimaging

M.S., Mathematics August 2015
Department of Computational Science and Engineering
Yonsei University, Seoul, South Korea

- **Advisor:** Prof. Yoon Mo Jung
- **Thesis:** *Convergence of Empirical Intensity CDF and Texture Classification*

B.S., Mathematics August 2013
B.A., Business Administration
Yonsei University, Seoul, South Korea

FELLOWSHIPS & AWARDS

- Outstanding Graduate Student Teaching Award April 2019
University of Notre Dame
- Marilyn Jane Navari Fellowship 2017 - Current
University of Notre Dame
- Navari Fellowship 2016 - 2017
University of Notre Dame
- Brain Korea 21 Scholarship 2013 - 2015
National Research Foundation of Korea

PUBLICATIONS

- [1] **K. You** and H-J. Park. (2020+) Re-visiting Riemannian geometry of symmetric positive definite matrices for the analysis of functional connectivity. *NeuroImage*. (In Press)
- [2] H. Tak, **K. You**, S. K. Ghosh, B. Su, and J. Kelly. (2020). Data transforming augmentation for heteroscedastic models. *Journal of Computational and Graphical Statistics*. **29**(3): 659-667.
- [3] J. H. Park, E-J. Kwak, **K. You**, Y-S. Jung, and H-D. Jung. (2019). Volume change pattern of decompression of mandibular odontogenic keratocyst. *Maxillofacial Plastic and Reconstructive Surgery*. **41**:2.
- [4] Y.J. Cha, **K. You**, and W. Choi. (2016). Vision-based detection of loosened bolts using the Hough transforms and support vector machines. *Automation in Construction*. **71**(2): 181-188.

PAPERS
UNDER REVIEW,
IN PROGRESS,
& PREPRINTS

- [i] BS. Thomas, L. Lin, **K. You**, L-H. Lim, and S. Mukherjee. Learning Subspaces of Different Dimensions. Submitted to *Journal of Computational and Graphical Statistics*.
- [ii] **K. You**. Rdimtools: An R package for Dimension Reduction and Intrinsic Dimension Estimation. Submitted to *Journal of Machine Learning Research*.
- [iii] D. Bao, **K. You**, and L. Lin. Network Distance Based on Laplacian Flows on Graphs. *arXiv:1810.02906*.
- [iv] B. Yu and **K. You**. Shape-Preserving Dimension Reduction via Persistent Homology. *In Preparation*.
- [v] **K. You**, L. Lin, and I-H. Jin. Topological Inference for Multiple Latent Space Models. *In Preparation*.
- [vi] **K. You**, Parameter Estimation for Spherical Normal Distribution and Its Applications. *In Preparation*.
- [vii] **K. You** and L. Lin, Geometric Inference on the Correlation Manifold. *In Preparation*.
- [viii] **K. You**, H-J. Park, and L. Lin, Bag of Brains : An Empirical Measure Approach for the Space of Functional Connectomics. *In Preparation*.
- [ix] **K. You**, Riemannian Self-Updating Process for Clustering Manifold-Valued Data. *In Preparation*.

PRESENTATIONS

(► Poster presentation; ▷ Contributed talk.)

- MNET 2.0: Big Graphical Mining of Multimodal Brain Networks. NetSci 2016. *Seoul, South Korea*, June 2016.
- Reusability of deep neural network for human functional networks. NetSci 2016. *Seoul, South Korea*, June 2016.
- Low-dimensional representation of human brain networks with modularity-based proximity of large-scale functional graphs. NetSci 2016. *Seoul, South Korea*, June 2016.
- ▷ Convergence of Empirical Intensity CDF and Texture Classification. KSIAM 2015 Spring Conference. *Suwon, South Korea*, May 2015

PROFESSIONAL
EXPERIENCE

Researcher October 2015 – July 2016
Yonsei Epilepsy Research Center, Seoul, South Korea

Research Associate August 2015 – September 2015
LG Electronics Advanced Research Institute, Seoul, South Korea

Assistant Project Manager July 2012 – June 2013
Korea International Cooperation Agency, Seoul, South Korea

STATISTICAL
SOFTWARE

(• in R on CRAN; more available on GitHub)

- ADMM Algorithms using Alternating Direction Method of Multipliers.
- CovTools Geometrical and Statistical Tools for Covariance Analysis.
- filling Matrix Completion, Imputation, and Inpainting Methods.
- graphon A collection of graphon estimation methods.
- maotai Tools for Matrix Algebra, Optimization and Inference.
- mclustcomp Measures for comparing partitions of sets.

- NetworkDistance Distance Measures for Networks.
- Rdimtools Dimension reduction and estimation methods.
- RiemBase Functions and C++ Header Files for Computation on Manifolds.
- Riemann Learning with Data on Riemannian Manifolds.
- Rlinsolve Fast Iterative solvers for (sparse) linear system of equations.
- ROptSpace Matrix Completion from a partially observed matrix.
- SBmedian Scalable Bayes with Median of Subset Posteriors.
- SHT Statistical Hypothesis Testing Toolbox.
- T4cluster Tools for Cluster Analysis.
- T4transport Tools for Computational Optimal Transport.
- tvR Total Variation Regularization for Signals and Images.
- Zseq Integer Sequence Generator.

TEACHING EXPERIENCE

Instructor Fall 2017 – Spring 2020
University of Notre Dame, USA
 • Statistical Methods and Data Analysis Lab (Accumulative : $4.78 \pm 0.31/5$)

Teaching Assistant Fall 2016 – Fall 2020
University of Notre Dame, USA
 • Mathematical Statistics (Fall 2020)
 • Systems and Technology: R (Summer 2017)
 • Probability and Statistics for Data Science (Summer 2017)
 • Statistics for the Life Sciences (Spring 2017)
 • Statistics for Business and Economics I (Fall 2016)

SKILLS

- *Language* Korean, English.
- *Software* R, MATLAB, C/C++, Python.
- *Others* Society of Actuaries Exam P, FM.

REFERENCES

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Dr. Hyungsuk Tak
 Assistant Professor
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Dr. Hae-Jeong Park
 Professor
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