

# Contents

About us	3
Professor	5
Lab Members	15



## About us



# Professor

## Contact

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## MailingAddress

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## Programming Languages

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C, R, Matlab, Julia, LaTeX.

## Academic Appointment

- 
- Yonsei University, Seoul, Republic of Korea. Assistant Professor, Department of Applied Statistics, Sept. 2019 - .
  - University of Notre Dame, Notre Dame, Indiana. Assistant Professor, Department of Applied and Computational Mathematics and Statistics, July 2015 - May 2019.
  - The Ohio State University Wexner Medical Center, Columbus, Ohio. Research Scientist, Center for Biostatistics, September 2014 - June 2015.
  - The University of Texas MD Anderson Cancer Center, Houston, Texas. Postdoctoral Fellow, Biostatistics, August 2011 - August 2014. *Mentor: Dr. Ying Yuan and Dr. Peter F. Thall*

## Education

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- Texas A&M University, College Station, Texas. Ph.D., Statistics, August 2011. *Advisor: Dr. Faming Liang*
- Yonsei University, Seoul, Republic of Korea. M.A., Applied Statistics, February 2006. B.A., Applied Statistics, Business Administration, February 2004.

## Teaching

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### 1. Texas A&M University, College Station, Texas USA

- **Lecturer**

1. STAT 303: Statistical methods Summer 2009
2. STAT 201: Elementary statistical inference Fall 2009
3. STAT 201: Elementary statistical inference Spring 2010

- **Teaching Assistant**

1. STAT 211: Principal of Statistics (Fall 2006 - Spring 2009)
2. STAT 630: Overview of Mathematical Statistics (Fall 2010, Spring 2011)
3. STAT 611: Theory of Inference (Spring 2011)
4. STAT 303: Statistical Methods (Summer 2011)

### 2. University of Notre Dame, Notre Dame, Indiana USA

- **Instructor**

1. ACMS 40950: Topics in Statistics Fall 2015, 2016
2. ACMS 60886: Applied Bayesian Statistics II Spring 2016, 2018
3. ACMS 30540: Mathematical Statistics Fall 2016
4. ACMS 60888: Statistical Computing and Monte Carlo Spring 2017, Fall 2018
5. ACMS 30530: Introduction to Probability Fall 2017
6. ACMS 40878: Statistical Computing with R Fall 2017, 2018, Spring 2019

### 3. Yonsei University, Seoul, Republic of Korea

- **Instructor**

1. STA 4118: Causal Inference Fall 2019
2. STA 6172: Statistical Computing for Data Science II Fall 2019, Spring 2021
3. STA 4117: Data Science 2 - Network Data Analysis Spring 2020, Spring 2021
4. STA 6800: Statistical Analysis of Network Spring 2020

5. STA 6160: Bayesian Analysis Fall 2020
6. STA 6171: Statistical Computing for Data Science I Fall 2020

## Publications

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Students are italic. for as corresponding author.

1. **Jin, I.H.** and Liang, F. (2013) Fitting social network models using varying truncation stochastic approximation MCMC algorithms. *Journal of Computational and Graphical Statistics*. Vol. 22. No. 4: pp. 927-952. **Selected as JCGS highlights at the Interface 2012: Future of Statistical Computing**
2. Liang, F. and **Jin, I.H.** (2013) A Monte Carlo Metropolis-Hasting algorithms for sampling from distributions with intractable normalizing constants. *Neural Computation*, Vol. 25. No. 8: pp. 2199-2234.
3. **Jin, I.H.**, Yuan, Y., and Liang, F. (2013) Bayesian analysis for exponential random graph models using the adaptive exchange sampler. *Statistics and Its Interface*, Vol. 6: pp. 559-576.
4. **Jin, I.H.** and Liang, F. (2014) Use of SAMC for Bayesian analysis of statistical models with intractable normalizing constants. *Computational Statistics and Data Analysis*. Vol. 71: pp. 402-416.
5. **Jin, I.H.**, Liu, S., Thall, P. F., and Yuan, Y. (2014) Using data augmentation to facilitate conduct of phase / clinical trials with delayed outcomes. *Journal of the American Statistical Association*. Vol. 109. No. 506: pp. 525-536.
6. **Jin, I.H.**, Huo, L., Yin, G., and Yuan, Y. (2015) Phase trial design for drug combinations with Bayesian model averaging. *Pharmaceutical Statistics*, Vol. 14. No. 2: pp. 109-119.
7. Liang, F., **Jin, I.H.**, Song, Q., and J.S. Liu. (2016) An adaptive exchange algorithm for sampling from distribution with intractable normalizing constants. *Journal of the American Statistical Association*. Vol. 111. No. 513: pp. 377-393.
8. **Jin, I.H.**, Yuan, Y., and Bandyopadhyay, D. (2016) A Bayesian hierarchical spatial model for dental caries assessments using non-gaussian Markov random fields. *The Annals of Applied Statistics*. Vol. 10. No. 2: pp. 884-905.
9. *Liu, H.*, **Jin, I.H.** and, Zhang, Z. (2018) Structural Equation Modeling of Social Networks: Specification, Estimation, and Applications. *Multivariate Behavioral Research*, Vol. 53. No. 5: pp.714-730. **Awarded Tanaka Award: Most Outstanding Article in Multivariate Behavioral Research Volume 53.**

10. **Jin, I.H.** and Jeon, M. (2019) A doubly latent space joint model for local item and person dependence in item response analysis. *Psychometrika*, Vol. 84. No. 1: pp. 236-260.
11. Nam, J. H., Yun, J., **Jin, I.H.** , and Chung, D. (2020) hubViz: A Novel Tool for Hub-centric Visualization. *Chemometrics and Intelligent Laboratory Systems*. Vol. 203. 104071.
12. Yun, J., Shin, M., **Jin, I.H.** , and Liang, F. (2020) Stochastic approximation Hamiltonian Monte Carlo. *Journal of Statistical Computation and Simulation*. Vol. 90. No. 17: pp. 3135-3156.
13. *Che, C.*, **Jin, I.H.**, and Zhang, Z. (2021) Network Mediation Analysis Using Model-based Eigenvalue Decomposition. *Structural Equation Modeling*. Vol. 28. No. 1: pp. 148-161.
14. *Liu, H.*, **Jin, I.H.**, Zhang, Z, and Yuan, Y. (2021) Social Network Mediation Analysis: Latent Space Approach. *Psychometrika*. Vol. 86. No. 1: pp. 272-298.
15. Jeon, M., **Jin, I.H.**, Schweinberger, M., and Baugh, S. (2021) Mapping unobserved item-respondent interactions: A latent space item response model with interaction map. *Psychometrika*. Vol. 86. No. 2: pp. 378-403.
16. Y. Zhang, S. Cao, C. Zhang, **Jin, I.H.**, and Zang, Y. (2021) A Bayesian Adaptive Phase I/II Clinical Trial Design with Late-onset Competing Risk Outcomes. *Biometrics*. In Press.
17. Park, J., **Jin, I.H.** , and Schweinberger, M. (2022) Bayesian Model Selection for High-Dimensional Ising Models, with Applications to Educational Data. *Computational Statistics and Data Analysis*. Vol. 125: Article 107325.
18. Park, J., *Jeon, Y.*, Shin, M., Jeon, M., and **Jin, I.H.** (2021) Bayesian Shrinkage for Functional Network Models, with Applications to Longitudinal Item Response Data. *Revision Journal of Computational and Graphical Statistics*. Accepted. ArXiv:2006.13698.

#### Submitted Manuscripts

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1. **Jin, I.H.**, Jeon, M., Schweinberger, M, and Lin, L. (2021) Hierarchical Network Item Response Modeling for Discovering Differences Between Innovation and Regular School Systems in Korea. Revision Invited to *Journal of Royal Statistical Society, Series C*. ArXiv:1810.07876.
  2. Liu, F., *Eugenio, E.*, **Jin, I.H.**, and *Bowen, C. M.* (2021) Differentially Private Synthesis of Social Network Structure via Exponential Random Graph Model. Revision Invited to *Journal of Survey Statistics and Methodology*.



3. **Jin, I.H.**, Liu, F., *Eugenio, E.*, Kim, J., and Liu, S. (2019) Bayesian Hierarchical Spatial Model for Small Area Estimation with Non-ignorable Nonresponses and Its Applications to the NHANES Dental Caries Assessments. Revision Invited to Annals of Applied Statistics. ArXiv:1810.05297.
4. *D. Ko*, M. Jeon, S. Lee, **Jin, I.H.**, and Park. H. (2021) Hidden Structure of How Children Think about Themselves Differs from What Parents Think about Their Children. Submitted to Plos One.
5. *Jeon, Y.*, Chung, D., *Park, J.*, and **Jin, I.H.** (2021) Network-based Trajectory Topic Interaction Map for Text Mining of COVID-19 Biomedical Literature. Submitted to Annals of Applied Statistics.
6. *Kim, H.*, Jeon, Y.J., Kim, H.C., **Jin, I.H.**, and Jung, S.J. (2021) Application of latent space item response model to clustering stressful life events and Beck Depression Inventory-II: Results from Korean epidemiological survey data. Submitted to Psychological Medicine.
7. Park, J. Kang, S. and **Jin, I.H.** (2021) Control of Frequentist Type I Error Rates in Hierarchical Linear Models for Multiregional Clinical Trials Using a Bayesian Approach. Submitted to Journal of Biopharmaceutical Statistics.
8. **Jin, I.H.**, *Park, J.*, and Jeon, M. (2021) How social network influences human behavior: An integrated latent space approach. Submitted to Psychometrika.

### Refereed Conference Proceeding

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1. Liu, F., *Eugenio, E.*, Jin, I.H, *Bowen, C. M.* (2020) Differentially Private Generation of Social Networks via Exponential Random Graph Models, Proceedings of 2020 IEEE 44th Annual Computers, Software, and Applications Conference (COMPSAC). pp. 1695-1700.

### Ongoing Project

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1. *D. Ko*, **Jin, I.H.**, and Im, J. (2021) Bayesian Nonparametric quantile regression with multiple proxy variables.
2. *Park, J.*, *Hu, W.*, **Jin, I.H.**, Bakoyannis, G., Zhang, Y., and Zang, Y. (2021) Bayesian adaptive phase I/II clinical trial design with competing risk model in personalized medicine.
3. Yun, J., *Kim, H.*, Jeon, M., **Jin, I.H.** (2021) Latent Space Accumulator Model for Interactions between Items and Respondents with Response Time

4. *Hong, M., Jin, I.H., and Lin, L.* (2021) A latent space model with Gaussian process for sparse weighted network.
5. *Ko, D., Park, J., Park, J., Jeon, M., and Jin, I.H.* (2021) LSIRM: An R Package for a Latent Space Item Response Model with an Interaction Map.
6. *You, K., Jeon, M., Kim, I., and Jin, I.H.* (2021) Multiple Latent Spaces Comparisons Using the Topological Analysis.

### Unpublished Manuscript

- 
1. **Jin, I.H.** and Liang, F. (2009) Bayesian analysis for exponential random graph models using the double Metropolis-Hastings sampler. Technical Report 2009-097. Institute for Applied Mathematics and Computer Science, Texas A&M University.
  2. *Brodersen, A., Jin, I.H., Cheng, Y., and Jeon, M.* (2021) Applying the Network Item Response Model to Student Assessment Data. ArXiv:2003.07657.

### Editorial Service

- 
- Associate Editor, Communications for Statistical Applications and Methods, 2017 -

### Scholarly Career

#### Grant Proposal

- 
- University of Notre Dame, Center for Informatics and Computational Sciences (2018 Seed Grant). “Incorporating Uncertainty in Plant Growth into Models of Coastal Sediment Accretion.” Role: Co-PI, Funded, \$32,000.
  - Yonsei University, Research Grant for New Faculty. “Latent Space Rasch Model: Binary Item Response Matrix Using Network Modeling.” 2019-2021. Role: PI, Funded, \$16,811.
  - Korean National Research Foundation. “Latent Space Generalized Linear Model and Its Applications.” 2020-2024. Role: PI, Funded, \$336,225.

#### Award

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- Korean International Statistical Society Career Development Award, 2017.

- Tanaka Award: Most Outstanding Article in Multivariate Behavioral Research Volume 53.

### Invited Presentations

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- MD Anderson Cancer Center, February, 2011.
- Complex Network Transition Workshop, SAMSI, June, 2011.
- Interface 2012: Future of Statistical Computing, May, 2012.
- Yonsei University, September, 2012.
- Konkuk University, September, 2012.
- University of California, Santa Cruz, February, 2013.
- Louisiana State University, April, 2013.
- Case Western Reserve University, May, 2013.
- American Institute of Mathematics Workshop, June, 2013.
- Joint Meeting of the IASC Satellite Conference for the 59th ISI WSC and the 8th Conference of the Asian Regional Section of the IASC, August, 2013.
- The University of Texas Health Science Center at Houston, November, 2013.
- Ohio State University Comprehensive Cancer Center, January, 2014.
- University of Waterloo, January, 2014.
- Washington University in St. Louis, February, 2014.
- University of Notre Dame, January, 2015.
- Symposium on Early Phase Dose Finding Methodology, April, 2015.
- KISS Invited Session, Korean Statistical Society Meeting 2016, May, 2016.
- 12th International Conference on MCQMC Method, August, 2016
- Western Michigan University, October, 2016
- University of Notre Dame (Department of Psychology), February, 2017
- University of California, Los Angeles (Graduate School of Education and Information Studies), March, 2017
- Statistical Inference for Biomedical Big Data Workshop, University of Florida, April, 2017
- Clinical Trial Design in the Era of Precision Medicine-Progress and Challenge, Indiana University, April, 2017.
- Purdue University, August, 2017.
- Indiana University-Purdue University Indianapolis, December, 2017.
- CMStatistics 2018, December, 2018.
- Yale University, January, 2019.
- University of California, San Francisco, March, 2019.
- Inha University, September, 2019.
- Annual Meeting of the International Society for Data Science and Analytics (Participated as Committee Member), May, 2020.
- Joint Statistical Meeting (JSM) 2020, August, 2020.
- Jeonnam National University, August, 2020.

- Seoul National University, September, 2020.
- Sungkyunkwan University, November, 2020.
- Samsung Medical Research Center, December, 2020.
- Korea University, April, 2021.

### Journal Referee

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- Journal of the American Statistical Association
- Journal of Computational and Graphical Statistics (3)
- Bayesian Analysis (2)
- Biometrics (2)
- Bioinformatics
- Computational Statistics and Data Analysis (8)
- Psychometrika.
- Structural Equation Modeling.
- Multivariate Behavioral Research.
- Spatial Statistics.
- Journal of the Korean Statistical Society (2).
- British Journal of Mathematical and Statistical Psychology
- Statistics and Probability Letters
- IEEE Transactions on Knowledge and Data Engineering
- BMC Medical Research Methodology.
- Plos One.
- Neurocomputing (2).
- Multivariate Behavioral Researches (2).
- Structureal Equation Modeling

### Academic Committee

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#### 1. Chair of Master's Committee

- Justin Lunningham (2016; University of Notre Dame)
- Alex Brodersen (2018; University of Notre Dame)
- Chang Che (2019; University of Notre Dame)
- Sunhee Park, Junyong Park, Suyoung Choi (2021. 02; Yonsei University)
- Doyoung Song (Current; Yonsei University)
- Hyunjoo Kim, Junghwan Lee (Current; Yonsei University)
- Sangjun Eom, Eunyoung Ryu, Hyunyeong Kim (Current; Yonsei University)

#### 2. Chair of Ph.D. Committee

- Haiyan Liu (2018; University of Notre Dame)
  - Co-advised with Zhiyong Johnny Zhang.

- Current Position: Assistant Professor at University of California, Merced.
- Topic: Structural Equation Modeling for Social Network.
- Kisung You (Current; University of Notre Dame)
- Jina Park (Current; Yonsei University)
- Dongyoung Ko (Current; Yonsei University)
- Yeseul Jeon (Current; Yonsei University)

### **Professional Memberships**

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- American Statistical Association
  - Institute of Mathematical Statistics
  - International Society of Bayesian Analysis
  - International Network of Social Network Analysis
  - Korean International Statistical Society
  - Korean Statistical Society



# Lab Members

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