

## Jun Song

---

### CONTACT INFORMATION

Department of Mathematics and Statistics  
9201 University City Blvd.  
Charlotte, NC 28223

*E-mail:* Jun.Song@unc.edu  
*Web:* <http://www.jsong.net>

### EDUCATION

**The Pennsylvania State University**, University Park, PA.

Ph.D. in Statistics, August 2012 – August 2017.

- Adviser: Professor Bing Li.

**Seoul National University**, Seoul, Korea.

B.S. in Statistics, February 2011.

B.S. in Mathematical Sciences, February 2011.

### ACADEMIC POSITIONS

**The University of North Carolina at Charlotte**, NC.

Assistant Professor, Department of Mathematics and Statistics, August 2017 – Present.

Affiliated Faculty, School of Data Science, August 2020 – Present.

### RESEARCH INTERESTS

Sufficient Dimension Reduction, Functional Data Analysis, Machine Learning, Graphical Model.

### PEER-REVIEWED ARTICLES

\*: Corresponding Author, †: UNC Charlotte Student

#### Published :

Bing Li and **Jun Song** (2021+) Dimension reduction for functional data based on weak conditional moments. *The Annals of Statistics* (Accepted).

Paul H. Jung<sup>†</sup> and **Jun Song**\* (2021+) Multivariate Neighborhood Trajectory Analysis: An Exploration of the Functional Data Analysis Approach. *Geographical Analysis* (Accepted).

**Jun Song**\* and Bing Li (2021) Nonlinear and additive principal component analysis for functional data. *Journal of Multivariate Analysis*, **181**, 104675.

**Jun Song**\* (2019) On sufficient dimension reduction for functional data: Inverse moment based methods. *Wiley Interdisciplinary Reviews: Computational Statistics*, **11**, e1459.

Holly Holt, Gabriel Villar, Weiyi Cheng, **Jun Song**, and Christina Grozinger (2018) Molecular, physiological and behavioral responses of honey bee (*Apis mellifera*) drones to infection with microsporidian parasites. *Journal of invertebrate pathology*, **155**, 14-24.

Bing Li and **Jun Song** (2017) Nonlinear sufficient dimension reduction for functional data. *The Annals of Statistics*, **45**, 1059–1095.

#### Submitted :

Ali Mahzarnia<sup>†</sup> and **Jun Song**\*, Multivariate functional group lasso: functional predictor selection. Submitted to *Journal of Machine Learning Research* (Under review).

**Jun Song** and Kyongwon Kim, Sparse Multivariate Functional PCA. Submitted to *Journal of the Royal Statistical Society: Series C* (Under review).

**In Progress :**

Bing Li and **Jun Song**, Sufficient dimension reduction for general tensors.

Ali Mahzarnia<sup>†</sup> and **Jun Song**\*, Nonlinear and additive functional group sparse regression: nonlinear functional predictor selection.

**Jun Song** and Won Chang, Calibration of High-dimensional Spatial Data via nonlinear sufficient dimension reduction.

**Jun Song**, Bing Li, and Hannu Oja, On functional Spearman's correlation and the related canonical correlation analysis.

**Jun Song**, Naomi S. Altman, and Kalyan Das, Self-modeling Nonlinear Poisson regression model.

TEACHING  
EXPERIENCE

**The University of North Carolina**, Charlotte, NC.

- STAT 7133 / 8133, Multivariate Analysis (graduate course), Spring 2018, Spring 2019.
- STAT 6115 / DSBA 6115, Statistical Learning with Big Data (graduate course), Fall 2018, Fall 2019, Fall 2020, Fall 2021.
- STAT 3122 / MATH 3122, Probability and Statistics I, Spring 2019.
- STAT 2122, Intro to Probability and Statistics, Spring 2020, Fall 2020, Spring 2021, Fall 2021.
- STAT 1222, Introduction to Statistics, Fall 2017, Summer 2018, Summer 2019.
- STAT 1221, Elements of Statistics I, Fall 2017, Fall 2018, Fall 2019, Spring 2020.

**The Pennsylvania State University**, University Park, PA.

- STAT 414 / MATH 414, Introduction to Probability Theory, Summer 2015, 2016.
- STAT 318 / MATH 318, Elementary Probability, Fall 2015, Spring 2016.

RESEARCH  
SUPERVISION

**The University of North Carolina**, Charlotte, NC.

- Ali Mahzarnia (current Ph.D. student)
- Avery Johnson (current M.S. student)
- Tanmay Kenjale (current B.S. Honor's project student)
- Ruari Swift-christian (B.S. in May 2020)
- Wei Zhang (M.S. in December 2018 | Current: Research Scientist, Standard Process Inc.)

HONORS AND  
AWARDS

**The University of North Carolina at Charlotte**

- Faculty Research Grant Award, 2018–2019.

### **The Pennsylvania State University**

- William Harkness Teaching Award, 2016.
- Jack and Eleanor Pettit Scholarship in Science, 2016.
- William Harkness Travel Award for JSM Seattle, 2015.
- August and Ruth Homeyer Graduate Fellowship, 2012–2013.
- University Graduate Fellowship, 2012–2013.

### **Seoul National University**

- Brain Korea 21 Fellowship, Korea, 2011–2012.

### **Korea Science and Engineering Foundation**

- National Science and Technology Scholarship, Korea, 2004–2010.

### CONFERENCE TALKS

#### **Invited Talks**

- Functional sufficient dimensions reduction via weak conditional moments, University of Illinois at Chicago, Online, November 2020.
- On sufficient dimension reduction for functional data, *Joint Statistical Meetings*, Virtual meeting, August 2020.
- On sufficient dimension reduction for functional data, *CMStatistics 2019*, London, UK, December 2019.
- Nonlinear dimension reduction for functional data, University of Nevada at Reno, October 2019.
- Nonlinear dimension reduction for functional data, George Mason University, October 2019.
  
- Nonlinear and additive principal component analysis for functional data, Korea University, Seoul, South Korea, July 2019.
- Nonlinear and additive principal component analysis for functional data, *EcoSta 2019*, Taichung, Taiwan, June 2019.
- Nonlinear and additive principal component analysis for functional data, *ICSA Applied Statistics Symposium*, Raleigh, North Carolina, June 2019.
- Nonlinear multivariate functional PCA, *Joint Statistical Meetings*, Vancouver, Canada, July 2018.
- Nonlinear multivariate functional PCA, *Conference of the Korean Statistical Society*, Busan, South Korea, May 2018.
- Nonlinear dimension reduction for functional data: supervised v.s. unsupervised, University of Kentucky, Lexington, Kentucky, March 2018.
- Dimension reduction for functional data, *ICSA Applied Statistics Symposium*, Chicago, Illinois, July 2017.
- Dimension reduction for functional data, Southern Methodist University, Dallas, Texas, February 2017

- Dimension reduction for functional data, University of North Carolina, Charlotte, North Carolina, February 2017
- Dimension reduction for functional data, Bowling Green State University, Bowling Green, Ohio, February 2017
- Dimension reduction for functional data, Miami University, Oxford, Ohio, January 2017
- Dimension reduction for functional data, University of Minnesota, Minneapolis, Minnesota, January 2017

### Contributed Talks

- On sufficient dimension reduction for functional data, *The Joint Statistical Meetings*, Chicago, Illinois, July 2016.
- Nonlinear sufficient dimension reduction for functional data, *The Joint Statistical Meetings*, Seattle, Washington, August 2015.

### PROFESSIONAL MEMBERSHIP AND SERVICES

- Member of the American Statistical Association.
- Member of the Institute of Mathematical Statistics.
- Member of the Korean International Statistical Society.
- Member of the Korean Statistical Society.
- External reviewer for *the Research Grants Council of Hong Kong*, 2018 – 2021.
- Reviewer for the following journals:  
*Annals of Statistics*, *Journal of the American Statistical Association*, *Journal of the Royal Statistical Society: Series B*, *Biometrika*, *Journal of Computational and Graphical Statistics*, *Journal of Multivariate Analysis*, *Statistica Sinica*, *Statistics and Computing*, *Statistics and Probability Letters*, *Stat*, *Annals of the Institute of Statistical Mathematics*, *Statistical Analysis and Data Mining*, *Wiley Interdisciplinary Reviews: Computational Statistics*, *Journal of System Science and Complexity*, and *Journal of Business & Economic Statistics*.
- Co-organizer, *The October Math Day Symposium*, Charlotte, NC, October 2020.
- Session organizer, *CMStatistics 2021*, London, UK, December 2021.
- Committee of Data Science and Business Analytics Graduate Curriculum, School of Data Science, UNC Charlotte, 2020 – Present.
- Graduate Teaching Assistant Mentor, Department of Math & Stat, UNC Charlotte, 2020 – Present.
- Committee of Ph.D. Qualifying Exam, Department of Math & Stat, UNC Charlotte, 2020 – Present.
- Committee of Graduate Curriculum, Department of Math & Stat, UNC Charlotte, 2017 – Present.
- Committee of High School Math Contest Exam, Department of Math & Stat, UNC Charlotte, 2017 – Present.
- Ph.D. Dissertation Committee  
July 2019    Chen Chen (Quantitative Associate at Lowes)  
May 2019    Jialin Zhang (Assistant Professor at Mississippi State University)

- M.S. Comprehensive Exam Committee
  - May 2021 Jinjing Zhang
  - April 2021 Avery Johnson
  - August 2020 Chunmei Chen
  - April 2019 Liang Zhao
  - December 2018 Jim Fan
  - December 2018 Wei Zhang
  - May 2018 Kyle Hooks
  - April 2018 Zhiyuan Weng
  - April 2018 Xueji Wang
  - April 2018 Bo Qiu
  - April 2018 Yumiao Li
  - March 2018 Yicheng Li

OTHER SERVICES  
AND EXPERIENCES

- Local Committee of National Math and Science Competition, KSEA, 2018–present.
- Proctor for Ph.D. Qualifying Exam, UNC Charlotte, 2019.
- Peer advisor for new Ph.D. students in Statistics, The Pennsylvania State University, 2014.
- Graduate Student Consultant, Statistical Consulting Center, The Pennsylvania State University, Fall 2013, Spring 2014.
- Graduate studies, Department of Statistics, Seoul National University, 2011 – 2012.
- Mentor for students in College of Liberal Studies, Seoul National University, 2010 – 2011.
- Research Assistant, The Bank of Korea, Seoul, Korea, Oct. 2008–Nov. 2008.
- Research Assistant, The Boston Consulting Group, Seoul, Korea, Aug. 2008–Sep. 2008.
- Excellent Undergraduate Tutor, Department of Mathematical Sciences, Seoul National University, Spring, 2008.
- Military Service, Sergeant, Republic of Korea Army, Feb. 2005 – Feb. 2007.