

Dayu Sun

Department of Biostatistics and Bioinformatics
Rollins School of Public Health
Emory University, Atlanta, GA

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EDUCATION

- Ph.D. Statistics, University of Missouri - Columbia, 2020
Dissertation: *Regression Analysis of Complex Longitudinal Data*
Supervisor: Dr. Jianguo (Tony) Sun
- M.A. Statistics, University of Missouri - Columbia, 2019
- M.Phil. Statistics, The Hong Kong Polytechnic University, 2016
Supervisors: Dr. Xingqiu Zhao and Dr. Zhisheng Ye
- B.S. *First Class Honours*, The Hong Kong Polytechnic University, 2013

APPOINTMENTS

- 2020– **Postdoctoral Fellow**
Department of Biostatistics and Bioinformatics, Emory University
Supervisors: Dr. Limin Peng, Dr. Ying Guo, and Dr. Amita Manatunga

RESEARCH AREAS

Joint analysis of complex longitudinal and time-to-event data: survival data, panel count data, asynchronous and sparse longitudinal data.

Tensor data analysis: tensor regression and application to neuroimaging data.

Applied statistics in criminology and clinical trials.

PUBLICATIONS

* indicates equal contributions; † indicates corresponding author(s)

Statistical Methodology

- [1] **Sun, D.**, Peng, L., Guo, Y., and Manatunga, A. “Partial generalized tensor regression,” In preparation.
- [2] **Sun, D.**, Sun, Z., Zhao, X., and Cao, H. “Kernel meets sieve: transformed hazards models with asynchronous longitudinal covariates,” In preparation.
- [3] **Sun, D.**, Guo, Y., Li, Y., Sun, J., and Tu, W. “A flexible time-varying coefficient rate model for panel count data,” Under review at *Biometrics*.
- [4] **Sun, D.**, Qiu, Z., Peng, L., Guo, Y., and Manatunga, A. “Partial quantile tensor regression,” Submitted to *the Annals of Statistics*.
- [5] Sun, R., **Sun, D.**, Zhu, L., and Sun, J. “Regression analysis of general mixed recurrent event data,” Under review at *Lifetime Data Analysis*.
- [6] **Sun, D.**, Guo, Y., Li, Y., Tu, W., and Sun, J. “A new robust approach for regression analysis of panel count data with time-varying covariates,” Major Revision at *Bernoulli*.

- [7] Guo, Y.^{*}, **Sun, D.^{*}**, and Sun, J. (2023). “Regression analysis of panel count data with both time-dependent covariates and time-varying effects,” *Statistica Sinica*. DOI: 10.5705/ss.202021.0036. To appear.
- [8] Guo, Y., **Sun, D.[†]**, and Sun, J. (2022). “Inference of a time-varying coefficient regression model for multivariate panel count data,” *Journal of Multivariate Analysis*, 192, 105047. DOI: 10.1016/j.jmva.2022.105047. To appear.
- [9] **Sun, D.**, Zhao, H., and Sun, J. (2021). “Regression analysis of asynchronous longitudinal data with informative observation processes,” *Computational Statistics & Data Analysis*, 157, 107161. DOI: 10.1016/j.csda.2020.107161.
- [10] Zhao, H., **Sun, D.**, Li, G., and Sun, J. (2019). “Simultaneous estimation and variable selection for incomplete event history studies,” *Journal of Multivariate Analysis*, 171, 350–361. DOI: 10.1016/j.jmva.2019.01.005.
- [11] Zhao, H., **Sun, D.**, Li, G., and Sun, J. (2018). “Variable selection for recurrent event data with broken adaptive ridge regression,” *Canadian Journal of Statistics*, 46 (3), 416–428. DOI: 10.1002/cjs.11459.
- [12] Shen, L., **Sun, D.**, Ye, Z., and Zhao, X. (2017). “Inference on an adaptive accelerated life test with application to smart-grid data-acquisition-devices,” *Journal of Quality Technology*, 49 (3), 191–212. DOI: 10.1080/00224065.2017.11917990. Alphabetical authorship.

Collaborative Work

- [13] Tracy, E. L., Lehrer, M., Buysse, D., Hall, M., Hasler, B., Krafty, R., So, C., **Sun, D.**, and Wilckens, K. “Effects of CBT-I on circadian rhythmicity and homeostatic sleep drive in older adults with insomnia,” In preparation.
- [14] Liu, L., Mowen, T. J., Visher, C. A., and **Sun, D.** (2022). “Violent victimization during reentry: prevalence, triggers, and impact on mental health,” *Justice Quarterly*. DOI: 10.1080/07418825.2022.2104747. To appear.
- [15] Liu, L., Bachman, R., Qiu, J., and **Sun, D.** (2021). “Do both petty and serious female offenders have shorter incarcerations than their male counterparts? Testing the universality of chivalrous treatment,” *Women & Criminal Justice*, 1–15. DOI: 10.1080/08974454.2021.1962479.
- [16] Liu, L., Visher, C. A., O’Connell, D. J., and **Sun, D.** (2021). “When post-incarcerated individuals return to high-risk neighborhoods: staying out of trouble, social withdrawal, and mental health,” *Crime & Delinquency*, 001112872110647. DOI: 10.1177/00111287211064785.
- [17] Yang, P., **Sun, D.**, Manatunga, A., Harris, F., Wells, L., Bhavani, S., Martin, G., and Esper, A. (2021). “Examining the Association Between Angiopoietin-2 Levels and Acute Respiratory Distress Syndrome Subtypes in Critically Ill Patients with Sepsis,” in: *American Journal of Respiratory and Critical Care Medicine*. Vol. 203, A2669–A2669. DOI: 10/h8rm.
- [18] Liu, L., Miller, S. L., Qiu, J., and **Sun, D.** (2020). “An early adverse experience goes a long, criminogenic, gendered way: the nexus of early adversities, adult offending, and gender,” *Women & Criminal Justice*, 31 (1), 24–39. DOI: 10.1080/08974454.2020.1805395.
- [19] Liu, L., Visher, C. A., and **Sun, D.** (2020). “Do released prisoners’ perceptions of neighborhood condition affect reentry outcomes?” *Criminal Justice Policy Review*, 32 (7), 764–789. DOI: 10.1177/0887403420980806.

AWARDS AND HONORS

- 2020 **Poster Award**, ICSA Applied Statistics Symposium
- 2019 **First Place in Poster Competition**, ICSA Midwest & NIC-ASA Joint all Meeting
- 2019 **First Place in Poster Competition**, Statistical Analyses of Multi-Outcome Data Workshop
- 2018 **Registration Award**, Symposium on Data Science & Statistics
- 2016-2020 **G. Ellsworth Huggins Scholarships**, University of Missouri
- 2011-2013 **The Hong Kong Polytechnic University Scholarship**
- 2013 **Scholarship in Economics**, The Hong Kong Polytechnic University
- 2012 **Dean's Honored List**, The Hong Kong Polytechnic University

CONFERENCES AND PRESENTATIONS

Invited Talks

- 2022 “A new robust approach for regression analysis of panel count data with time-varying covariates.” 4th International Conference on Statistical Distributions and Applications, Huntington, WV. Oct 13-15.
- 2022 “A new robust approach for regression analysis of panel count data with time-varying covariates.” The 5th International Conference on Econometrics and Statistics (EcoSta 2022), Ryukoku University, Kyoto, Japan. Jun 4-6.
- 2022 Invited Panelist, NISS GSN Webinar: Postdoctoral Panel, Virtual. Jan 27.
- 2021 “Kernel meets sieve: transformed hazards models with asynchronous longitudinal covariates.” Biostatistics Group Seminar, University of Missouri. May 11.
- 2021 “Kernel meets sieve: transformed hazards models with asynchronous longitudinal covariates.” Statistics Department Seminar, Georgia State University. Mar 26.
- 2021 “Kernel meets sieve: transformed hazards models with asynchronous longitudinal covariates.” Dr. Hongyuan Cao's group, Florida State University. Mar 11.

Sessions Organized

- 2022 “Recent developments in complex imaging data analysis.” The 5th International Conference on Econometrics and Statistics (EcoSta 2022), Ryukoku University, Kyoto, Japan. June 4-6.
- 2021 “Statistical Approaches to Addressing Challenges in Neuroimaging Research.” The Statistical Methods in Imaging Conference, Atlanta, GA. May 17-19.

Sessions Chaired

- 2022 “Statistical Methods in Handling Longitudinal Data and Temporal Effect.” Joint Statistical Meeting, Washington, DC. Aug 6–11.
- 2022 “Recent developments in complex imaging data analysis.” The 5th International Conference on Econometrics and Statistics (EcoSta 2022), Ryukoku University, Kyoto, Japan. Jun 4–6.
- 2022 “Contributed Papers: Imaging Data.” ENAR Spring Meeting. Houston, TX. Mar 27–30.

- 2021 “Contributed Papers: Advanced Modeling for Imaging Data.” ENAR Spring Meeting, Virtual. Mar 14–17.
- 2021 “Parallel session 4.” Georgia Statistics Day. Oct 11.
- 2021 “Statistical Approaches to Addressing Challenges in Neuroimaging Research.” The Statistical Methods in Imaging Conference. Atlanta, GA. May 17-19.

Campus Talks

- 2022 “Partial quantile tensor regression with application to neuroimaging data.” Post-doc research talk for accepted students, Emory University, Atlanta, GA.

Conference Papers Presented

- 2022 “Envelop-based quantile tensor regression model with application to neuroimaging data.” Joint Statistical Meeting, Washington, DC. Aug 6–11.
- 2022 “Envelop-based quantile tensor regression model with application to neuroimaging data.” ENAR Spring Meeting, Huston, TX. Mar 27–30.
- 2021 “Tensor partial least squares for the quantile regression model with multiway neuroimaging data.” Joint Statistical Meeting, Virtual. Aug 8–12.
- 2020 “Semiparametric maximum likelihood estimation for panel count data with time-dependent covariates.” Joint Statistical Meeting, Virtual. Aug 2–6.
- 2020 “Semiparametric maximum likelihood estimation for panel count data with time-dependent covariates.” ENAR Spring Meeting, Virtual. Mar 22-25.
- 2019 “Regression analysis of sparse asynchronous longitudinal data with informative observation times.” Joint Statistical Meeting, Denver, Colorado. Jul 27–Aug 1.
- 2018 “Variable selection for recurrent event data with broken adaptive ridge regression.” Symposium on Data Science & Statistics, Reston, VA. May 16–19.

Posters

- 2020 “Semiparametric maximum likelihood estimation for panel count data with time-dependent covariates.” ICSA Applied Statistics Symposium, Virtual. Dec 13–16.
- 2019 “Regression analysis of sparse asynchronous longitudinal data with informative observation times.” ICSA Midwest & NIC-ASA Joint all Meeting, Chicago, IL. Oct 24-25.
- 2018 “Variable selection for recurrent event data with broken adaptive ridge regression.” Statistical Analyses of Multi-Outcome Data Workshop, Saint Louis, MO. Jun 11–12.

TEACHING EXPERIENCE

G: Graduate level, UG: Undergraduate level.

Emory University

Instructor: Seminar in Biostatistics (G), Fall 2022 – Spring 2023

Guest Lecturer:

Statistical Inference II (G), Spring 2021, 2022

Survival Analysis Methods (UG), Fall 2020

Linear Models (G), Fall 2021

University of Missouri

Teaching Assistant: Introductory Statistical Reasoning (UG), Spring 2016 – Fall 2020

Instructed lecturer: Applied Survival Analysis (UG/G), 2020 Fall

The Hong Kong Polytechnic University

Independent Tutor: Engineering Mathematics (UG), Fall 2014 –Spring 2015

Mentoring Students

With collaborators and supervisors

2020–2021 Zhuowei Sun, Doctorate, Jilin University, China

2022– Mengyu He, Doctorate, Emory University

SERVICE

Academic Journal Referee/Reviewer

JASA (1), *Biometrics* (1), *Computational Statistics & Data Analysis* (2), *Lifetime Data Analysis* (3), *Statistics and its Interface* (2), *International Journal of Biostatistics* (1), *BMC Medical Research Methodology* (1), *Statistics in Medicine* (1).

Grant Reviewer

2022 Research Development Fund of Xi'an Jiatong-Liverpool University

Conference Service

2022 COPSS Reception Receptionist at Joint Statistical Meeting 2022. Aug 10

2022 Program Committee, ICSA China Conference, Xi'an, Shaanxi, China. Jul 1–3

2021 Postdoc Conference Organizing Group, The Statistical Methods in Imaging Conference, Atlanta, GA. May 17–19

University/Departmental Service

2022-23 Department Seminars in Biostatistic and Bioinformatics organizer (with Joshua Lukemire), Emory University, Fall 2022 – Spring 2023

2022 Ph.D. qualifying exam proctor, Department of Biostatistic and Bioinformatics, Emory University

2022 Survival and Longitudinal Data Analysis Study Group organizer, Department of Biostatistic and Bioinformatics, Emory University, Spring 2022

2019-20 Biostatistics Group Seminar organizer, Department of Statistic, University of Missouri

SKILLS

Programming skills: Matlab, Mathematica, Python, R, C++, SAS, Linux shell scripting

Languages: Mandarin (Native), English (Fluent), Cantonese (Conversational)

MEMBERSHIPS

American Statistical Association (ASA)

International Biometrics Society - Eastern North American Region (ENAR)

International Chinese Statistical Association (ICSA)

PROFESSIONAL EXPERIENCE

May–Aug 2019 **Intern**, Eli Lilly and Company, *Indianapolis, IN*

Jan–Apr 2017 **Research Assistant**, School of Journalism, *University of Missouri and Chinese University of Hong Kong*

Jun–Aug 2014 **Visiting Research Engineer**, Department of Industrial and Systems Engineer, *The National University of Singapore*

REFEREES

Dr. Amita Manatunga

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