

Dayu Sun

Department of Biostatistics and Health Data Science
School of Medicine
Indiana University, Indianapolis, IN

✉ dayusun@iu.edu
🌐 www.sundayu.me

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

- 2023/09- **Affiliated Scientist**
Center of Aging Research,
Regenstrief Institute
- 2023/06- **Assistant Professor (tenure–track)**
Department of Biostatistics and Health Data Science,
School of Medicine, Indiana University
- 2020–23 **Postdoctoral Fellow**
Department of Biostatistics and Bioinformatics,
Rollins School of Public Health, Emory University
Supervisors: Dr. Limin Peng, Dr. Ying Guo, and Dr. Amita Manatunga
- 2017 **Research Assistant**
School of Journalism
University of Missouri and Chinese University of Hong Kong
- 2014 **Visiting Research Engineer**
Department of Industrial and Systems Engineer
The National University of Singapore

PUBLICATIONS

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

Statistical Methodology

- [1] LIKASSA, H. T., Chen, D.-G., Chen, K., Wang, Y., Zhu, W., Dumitrascu, O., and Sun, D. “Robust Principal Component Analysis with Truncated Weighted Nuclear Norm and Adaptive Histogram Equalization: A Novel Method for Low-Quality Retinal Image Enhancement,” Submitted.
- [2] Zhao, S., Guo, Z., Wang, K., Sun, S., **Sun, D.**, Wang, W., He, D., Chong, M. K., Hao, Y., and Yeoh, E.-K. “modelSSE: An R package for characterizing infectious disease superspreading from contact tracing data,” Submitted.

- [3] **Sun, D.**, Sun, Z., Zhao, X., and Cao, H. “Kernel meets sieve: transformed hazards models with asynchronous longitudinal covariates,” DOI: 10.48550/arXiv.2308.15549. arXiv: 2308.15549. Under Review at *the Journal of American Statistical Association*.
- [4] **Sun, D.**, Qiu, Z., Peng, L., Guo, Y., and Manatunga, A. “Partial quantile tensor regression,” Under Review at *the Journal of American Statistical Association*.
- [5] **Sun, D.**, Guo, Y., Li, Y., Sun, J., and Tu, W. (2024). “A flexible time-varying coefficient rate model for panel count data,” *Lifetime Data Analysis*. ISSN: 1572-9249. DOI: 10.1007/s10985-024-09630-1.
- [6] **Sun, D.**, Guo, Y., Li, Y., Tu, W., and Sun, J. (2024). “A robust approach for regression analysis of panel count data with time-varying covariates,” *Bernoulli*, 30 (4), 3251–3275. DOI: 10.3150/23-bej1713.
- [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*, 33, 1–21. DOI: 10.5705/ss.202021.0036.
- [8] Sun, R., **Sun, D.**, Zhu, L., and Sun, J. (2023). “Regression analysis of general mixed recurrent event data,” *Lifetime Data Analysis*, 29 (4), 807–822. DOI: 10.1007/s10985-023-09604-9.
- [9] 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.
- [10] **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.
- [11] 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.
- [12] 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.
- [13] 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

- [14] Sun, Y., Li, J., Liu, X., Adams, D., Su, J., Liu, Z., **Sun, D.**, and Meng, L. “The optimal blood pressure and heart rate combinations in critically ill patient: A time-dependent Cox’s proportional hazards model,” In preparation.
- [15] Liu, L., Padron, M., Sun, D., and Pettit, J. W. (2024). “Temporal Trends in Suicide Ideation and Attempt among Justice-Involved Youth from 2016 to 2021,” *Suicide and Life-Threatening Behavior*. DOI: 10.1111/sltb.13133. Accepted.
- [16] 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.
- [17] 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*, 40, 534–558. DOI: 10.1080/07418825.2022.2104747.

- [18] 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.
- [19] Liu, L., Visser, 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.
- [20] 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.
- [21] 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.
- [22] Liu, L., Visser, 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.

CONFERENCES AND PRESENTATIONS

Invited Talks

- 2024 “Sparse Partial Generalized Tensor Regression.” Ecosta 2024, Beijing, China. July 17-19, 2024.
- 2024 “Scalable Regression Analysis for Non-Normal Longitudinal Data in the Presence of Informative Observation Times with Application to EHR Data.” 2024 ICSA China Conference, Wuhan, China. June 28-30, 2024.
- 2024 “Semiparametric Rate Model for Panel Count Data: Challenges of Time-varying.” 2024 ICSA Applied Statistics Symposium, Nashville, TN. June 16-19, 2024.
- 2024 “Sparse Partial Generalized Tensor Regression.” Statistical Methods in Imaging Conference 2024, Indianapolis, IN. May 29-31, 2024.
- 2023 “Partial Tensor Regression.” Department of Bioinformatics and Biostatistics Seminar, University of Louisville, Louisville, KY, USA. October 20.
- 2023 “Partial Quantile Tensor Regression.” Being Significant: 60 Years of Mizzou Statistics Conference, University of Missouri, Columbia, MO, USA. October 12-14.
- 2023 “Partial Quantile Tensor Regression.” 12th ICSA International Conference, Chinese University of Hong Kong, Hong Kong, China. July 7-9.
- 2023 “Partial Quantile Tensor Regression.” ICSA 2023 Applied Statistics Symposium, University of Michigan, Ann Arbor, MI. June 11-14.
- 2023 “Sparse Partial Logistic Tensor Regression with Application to Neuroimaging Data.” Statistical Methods in Imaging Conference, University of Minnesota, Minneapolis, MN. May 22-24.
- 2023 “Kernel meets sieve: transformed hazards models with asynchronous longitudinal covariates.” 2023 Lifetime Data Science Conference, Raleigh, North Carolina. May 31 – Jun 2.
- 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

- 2024 “Recent Advances in Statistical Imaging Analysis.” Joint Statistical Meeting, Portland, OR. August 3-8, 2024. (Co-organized with Dr. Xin Ma)
- 2024 “Recent Developments in Statistical Methodology for Neuroimaging Data Analysis.” Statistical Methods in Imaging Conference 2024, Indianapolis, IN. May 29-31, 2024.
- 2024 “Recent Developments for Dynamic and Time-to-event Data Analysis.” 2024 ICSA Applied Statistics Symposium, Nashville, TN. June 16-19, 2024.
- 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

- 2024 “Recent Advances in Statistical Imaging Analysis.” Joint Statistical Meeting, Portland, OR. August 3-8, 2024.
- 2023 “Statistical and Deep Learning for Survival Data.” 12th ICSA International Conference, Chinese University of Hong Kong, Hong Kong, China. July 7-9.
- 2023 “Advanced Methods for Challenging Problems in Brain Imaging Studies.” ICSA 2023 Applied Statistics Symposium, University of Michigan, Ann Arbor, MI. June 11-14.
- 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.
- 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.” CBIS seminar, Emory University, Atlanta, GA. Sep 30.

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

Conference Papers Presented

- 2023 “Envelop-based generalized tensor regression model with application to neuroimaging data.” ENAR Spring Meeting, Nashville, NT. Mar 19–22.
- 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




- 2023 Tracy, E. L., Lehrer, H. M., Sun, D., Krafty, R. T., Hasler, B. P., Wilckens, K., Hall, M. H., & Buysse, D. “Effects of CBT-I on Circadian rhythmicity and homeostatic sleep regulation in older adults with insomnia.” Pittsburgh Psychiatry Research Day, Pittsburgh, PA. June 8.
- 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.

AWARDS AND HONORS

- 2023 **Junior Researcher Award**, 12th ICSA International Conference, *Hong Kong, China*. July 7–9
- 2020 **Poster Award**, ICSA Applied Statistics Symposium, *Virtual*. Dec 13–16
- 2019 **First Place in Poster Competition**, ICSA Midwest & NIC-ASA Joint All Meeting, *Chicago, IL*. Oct 24–25
- 2019 **First Place in Poster Competition**, Statistical Analyses of Multi-Outcome Data Workshop, *Saint Louis, MO*. Jun 11–12
- 2018 **Registration Award**, Symposium on Data Science & Statistics
- 2016–20 **G. Ellsworth Huggins Scholarships**, University of Missouri

- 2011-13 **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

SOFTWARE

PQTR, A MATLAB package for Partial Quantile Tensor Regression,  dayusun/PQTR
 SMKLE: Sieve Maximum Kernel-weighted Log-likelihood Estimation,  dayusun/SMKLE
 SurvSparse: Survival Analysis with Sparse Longitudinal Covariates, DOI:
 10.32614/CRAN.package.SurvSparse 

TEACHING AND MENTORING

G: Graduate level, UG: Undergraduate level.

Emory University

Instructor: (Advanced) 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

Introduction to Statistics for Business (UG), Fall 2014 –Spring 2015

SERVICE

Editorial Service

2023 - Associate Editor, American Journal of Emerging Scholars

Academic Journal Referee/Reviewer

JASA (1), *Annals of Applied Statistics* (3), *Biometrics* (1), *Computational Statistics & Data Analysis* (2), *Lifetime Data Analysis* (4), *Statistics and its Interface* (2), *International Journal of Biostatistics* (1), *BMC Medical Research Methodology* (1), *Statistics in Medicine* (1), *Statistical Methods in Medical Research* (1).

Grant Reviewer

- 2023 Postgraduate Research Scholarship Application Review of Xi'an Jiatong-Liverpool University
 2022 Research Development Fund of Xi'an Jiatong-Liverpool University

Conference Service

- 2025 Program Book Committee chair; Online Platform Committee, 2025 Lifetime Data Science Conference, New York, NY, USA. May 28–30.
- 2024 Student Paper Award Committee chair; Online Platform Committee, Statistical Methods in Imaging Conference 2024, Indianapolis, IN. May 29-31.
- 2023 Program Book Committee chair; IT and Website Committee, 12th ICSA International Conference Conference 2023, Hong Kong, China. July 7–9.
- 2023 Program Book Committee chair, ICSA China Conference 2023, Chengdu, China. June 30 – July 3.
- 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

- 2024-25 Departmental Seminar Organizer, Department of Biostatistic and Health Data Science, Indiana University School of Medicine
- 2024 Qualifying Examination Committee Member, Department of Biostatistic and Health Data Science, Indiana University School of Medicine
- 2024 Admission Committee Member, Department of Biostatistic and Health Data Science, Indiana University School of Medicine
- 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)

PROFESSIONAL EXPERIENCE

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

MEMBERSHIPS

American Statistical Association (ASA)

International Biometrics Society - Eastern North American Region (ENAR)

International Chinese Statistical Association (ICSA)

Updated October 2024