

Lan Luo

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Education

2016 - 2020	UNIVERSITY OF MICHIGAN Ph.D. Biostatistics (Advisor: Peter X.K. Song)	Ann Arbor, MI
2014 - 2016	UNIVERSITY OF MICHIGAN M.S. Biostatistics	Ann Arbor, MI
2009 - 2013	HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY B.S. Biology	Wuhan, China

Research Interests

Online statistical inference, longitudinal data analysis, mobile health, adaptive experimental design, causal inference, mediation analysis, epigenetic clocks

Professional Appointments and Experience

2020 - present	Assistant Professor Department of Statistics and Actuarial Science College of Liberal Arts and Science University of Iowa	Iowa City, IA
2019	Data Scientist Intern , <i>Online A/B Testing with Valid Confidence Intervals</i> Google LLC	Mountain View, CA
2017-2019	Research Assistant , <i>Black Women's Wellness Project</i> Department of Health Behavior and Health Education, University of Michigan Ann Arbor, MI	

Teaching Experience

2023 Spring	Instructor , <i>Applied Linear Regression</i> Department of Statistics & Actuarial Science, University of Iowa	Iowa City, IA
2021 Fall	Instructor , <i>Introduction to Data Science (new course)</i> Department of Statistics & Actuarial Science, University of Iowa	Iowa City, IA
2020-2022 Fall	Instructor , <i>Mathematical Statistics I</i> Department of Statistics & Actuarial Science, University of Iowa	Iowa City, IA
2021-2023 Spring	Instructor , <i>Mathematical Statistics II</i> Department of Statistics & Actuarial Science, University of Iowa	Iowa City, IA

Publications

1. **Luo, L.**, Wang, J. and Hector, E.C. (2023) Statistical inference for streamed longitudinal data. *Biometrika* (accepted with invitation for Discussion).
2. **Luo, L.**, Zhou, L. and Song, P.X.K. (2022). Real-time regression analysis of streaming clustered data with possible abnormal data batches. *Journal of the American Statistical Association (Theory & Methods)* (accepted).
3. **Luo, L.** and Li, L. (2022). Online two-way estimation and inference via linear mixed-effects models. *Statistics in Medicine* (accepted).
4. Hector, E.C.*, **Luo, L.*** and Song, P.X.K. (2022). Parallel-and-stream accelerator (PASA) in fast computing for big data. *Computational Statistics and Data Analysis* (accepted).
5. **Luo, L.** and Song, P.X.K. (2021). Multivariate online regression analysis with heterogeneous streaming data. *The Canadian Journal of Statistics*. <http://doi.org/10.1002/cjs.11667>.
6. **Luo, L.** and Song, P.X.K. (2020). Renewable estimation and incremental inference in generalised linear models with streaming datasets. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, **82**, Part1, 69–97. An earlier version of this paper “real-time regression analysis of streaming health datasets” won the 2019 ENAR Distinguished Student Paper Award.
7. **Luo, L.**, She, X.C., Cao, J., Zhang, Y.L., Li, Y., Song, P.X.K. (2019). Detection and prediction of ovulation time from body temperature measured by YONO earbud. *IEEE Transactions on Biomedical Engineering*, **67**(2): 512–522.
8. Shen, R., **Luo, L.** and Jiang, H. (2017). Identification of gene pairs through penalized regression subject to constraints. *BMC Bioinformatics*, **18**: 466.
9. Yang, Y.*, **Luo, L.***, Xu, J.* et al. (2013). Novel EDA p.Ile260Ser mutation linked to non-syndromic hypodontia. *Journal of Dental Research*, **92**: 500–506.

Manuscripts In Revision

10. Tran, L., Li, G. **Luo, L.** and Jiang, H. (2021+) *ECLasso*: Fitting equality-constrained, ℓ_1 -penalized models with inexact ADMM to find gene pairs. *In Revision at the Journal of Computational and Graphical Statistics*.
11. Han, R.*, **Luo, L.***, Lin, Y. and Huang, J. (2022+) Online inference with debiased stochastic gradient descent. *In Revision at Biometrika*.
12. **Luo, L.***, Han, R.*, Lin, Y. and Huang, J. (2021+) Statistical inference in high-dimensional generalized linear models with streaming data. *In Revision at Electronic Journal of Statistics*.

Manuscripts Submitted

13. Han, R.*, **Luo, L.***, Lin, Y. and Huang, J. (2021+) Online debiased lasso for streaming data.
14. Shi, X.* and **Luo, L.*** (2021+) Sequential monitoring and near real-time post-market vaccine safety surveillance.

(*: Co-first authors)

Grants

Title	Collaborative Project: Transferable prediction, online informatics platform, and applications in biological aging clocks
Role	Principal investigator
Funding agency	Joint Division of Mathematical Sciences (DMS)/NIGMS Initiative
Status	Pending (submitted in September, 2022)
Title	Transfer learning and uncertainty quantification in epigenetic clocks
Role	Principal investigator
Funding agency	National Institutes of Health
Status	Pending (submitted in October, 2022)
Title	Online Statistical inference and conformal prediction with dynamic and dependent streaming data
Role	Principal investigator
Funding agency	National Science Foundation, DMS
Status	Pending (submitted in December, 2022)

Honors and Awards

2022	Old Gold Summer Fellowship
2020	Student Paper Competition Award for Statistical Learning and Data Science
2020	Winning Proposal in the 2020 Joint Shark Tank Retreat
2019	Excellence in Research Honorable Mention
2019	Rackham Predoctoral Fellowship for Academic Year 2019-2020
2019	The International Biometric Society Eastern North American Region's (ENAR) Distinguished Student Paper Award
2018	The Michigan Institute for Data Science (MIDAS) Annual Symposium Poster Award of Most Innovative Use of Data
2015	Outstanding Academic Performance First-Year Master's Program
2015	Certificate in Public Health Genetics (CPHG) Award
2013	HUST Excellent Graduate
2011	China National Scholarship

Presentations

Department - Colloquium

2023	<i>Online Statistical Inference with Streaming Data: Renewability, Dependence, and Dynamics</i> , Department of Statistics, North Carolina State University, Raleigh, NC, United States.
2022	<i>Online Statistical Inference in Streaming Data: Renewability, Dependence, and Dynamics</i> , Department of Biostatistics and Epidemiology, Rutgers University (virtual).
2022	<i>Online Statistical Inference in Streaming Data: Renewability, Dependence, and Dynamics</i> , Department of Statistics, North Carolina State University (virtual).

- 2022 *Online Statistical Inference with Dynamic and Dependent Streaming Data*, Data Mining Iowa Group, Business Analytics Department, University of Iowa, Iowa City, IA, United States.
- 2022 *Real-Time Regression Analysis with Dynamic Streaming Datasets*, StatScale seminars, Lancaster University, Bailrigg, Lancaster, United Kingdom (virtual).
- 2021 *Real-Time Regression Analysis with Streaming Health Datasets*, Department of Biostatistics, College of Public Health, University of Iowa, Iowa City, IA, United States (virtual).
- 2020 *Renewable Estimation and Incremental Inference with Streaming Health Datasets*, Department of Statistics and Actuarial Science, University of Iowa, Iowa City, IA, United States.
- 2020 *Real-Time Regression Analysis with Streaming Health Datasets*, Public-Health Sciences – Biostatistics Program, Fred Hutchinson Cancer Research Center, Seattle, WA, United States.
- 2020 *Renewable Estimation and Incremental Inference with Streaming Health Datasets*, Department of Statistics, UW Madison College of Letters & Science, Madison, WI, United States.
- 2020 *Renewable Estimation and Incremental Inference with Streaming Health Datasets*, Department of Statistics and Data Sciences, College of Natural Sciences, The University of Texas at Austin, Austin, TX, United States.
- 2020 *Renewable Estimation and Incremental Inference with Streaming Health Datasets*, Department of Statistics and Operations Research, The University of North Carolina at Chapel Hill, Chapel Hill, NC, United States.
- 2020 *Real-Time Regression Analysis with Streaming Health Datasets*, Department of Biostatistics, Fielding School of Public Health, University of California, Los Angeles, CA, United States.
- 2020 *Real-Time Regression Analysis with Streaming Health Datasets*, Department of Biostatistics, University of Minnesota, Minneapolis, Minnesota, United States.
- 2020 *Renewable Estimation and Incremental Inference with Streaming Health Datasets*, Department of Mathematics and Statistics, McGill University, Montreal, Quebec, Canada.
- 2020 *Renewable Estimation and Incremental Inference with Streaming Health Datasets*, Department of Statistics and Actuarial Science, University of Waterloo, Waterloo, ON, Canada.

International - Conference Presentation

- 2022 *Multivariate Online Regression Analysis with Heterogeneous Streaming Data*. Joint Statistical Meetings, Washington D.C., United States.
- 2022 *Multivariate Online Regression Analysis with Heterogeneous Streaming Data*. The Fifth ICSA-Canada Chapter Symposium, Banff, Canada.
- 2021 *Multivariate Online Regression Analysis with Heterogeneous Streaming Data*. International Chinese Statistical Association (virtual).
- 2021 *Sequential Monitoring and Near Real-Time Post-Market Vaccine Safety Surveillance*. International Chinese Statistical Association (virtual).
- 2020 *Real-Time Regression Analysis of Streaming Clustered Datasets*. Joint Statistical Meetings (virtual).

Software

R packages: glmADMM, RenewGLM, RenewQIF (available on <https://github.com/luolsph>)

Technical Skills

R, Rcpp, SAS, Python, SQL, Matlab, TeX

Professional Activities and Service

Journal referee	Journal of the American Statistical Association, Biometrika, Journal of Econometrics, Annals of Applied Statistics, Statistical Sinica, Biometrics, Statistics in Medicine, Electronic Journal of Statistics, Journal of Computational and Graphical Statistics, Computational Statistics and Data Analysis, IEEE Transactions on Neural Networks and Learning Systems, International Journal of Biostatistics
Department	Colloquium committee, Member (2023) Executive committee, Member (2022 - 2023) Graduate Minor Exam Committee, Member (2021 - 2023) Social Committee, Chair (2020 - 2022) Computer Committee, Member (2020 - present)
Member	International Chinese Statistical Association (2021 - present) American Statistical Association (2018 - present) International Biometric Society, ENAR (2017 - present)
Conference Service	Session Organizer and Chair, <i>Causal inference in observational studies and adaptive experiments</i> (2023 ICSA Applied Statistics Symposium) Session Organizer and Chair, <i>Recent advances in streaming data analytics</i> (2022 Joint Statistical Meetings)