

YUMING SUN

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Research Interests

Methodology: statistical learning, survival analysis, semi/nonparametric models, feature selection

Application: risk assessment in healthcare, statistical learning for medical imaging

Education

University of Michigan , Ann Arbor, MI	
Ph.D. in Biostatistics. Advisor: Yi Li and Jian Kang	2023
University of Michigan , Ann Arbor, MI	
M.S. in Biostatistics	2019
Sun Yat-sen University , Guangzhou, China	
B.Med. in Preventive Medicine	2017

Professional Experience

Assistant Professor	
Department of Mathematics, William & Mary, Williamsburg, VA	2023 - present
Research Assistant	
Department of Biostatistics, University of Michigan, Ann Arbor, MI	2019 - 2023

Honors and Awards

American Statistical Association Risk Analysis Student Paper Award	2021
Michigan Student Symposium for Interdisciplinary Statistical Sciences Best Poster	2021
Michigan Student Symposium for Interdisciplinary Statistical Sciences ASA Sponsored Award	2021
Department of Biostatistics Outstanding Academic Performance Award	2019
The Medical Scholarship by Daiichi-Sankyo Corporation	2012
Sun Yat-sen University Merit Based Scholarship	2012 - 2016

Publications

Paper Submitted

1. **Sun, Y.**, Lee, A., Lee, S., Dey, T. (2025). Spatiotemporal Analysis of Human Response to Wildfire Events and PM_{2.5} Exposure. Under review (second round), American Journal of Epidemiology.
2. Alvarez, A., **Sun, Y.**, Li, Y., Christiani, D. (2025). Effects of gender on mortality in patients with lung cancer: A multiple mediation analysis of Boston Lung Cancer Study. Under review, Clinical Lung Cancer.
3. Clapham, J., Chen, M., Mersa, O., Koltermann, K., Zhang, Y., **Sun, Y.**, Burnet, E., Zhou, G. (2025). IMUVIE: Generalizable Pickup Measurement via Motion Movies. Under review, Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies.
4. Clapham, J., Mersa, O., Chi, C., Zhang, Y., **Sun, Y.**, Burnet, E., Zhou, G. (2025). Trunk-Top: Humanized Pickup Activity Measurement with Uncertainty Quantification via Trunk-based Inertial Sensors. Under review,

Paper Published

5. **Sun, Y.**, Kang, J., Zhang, F., Wang, H., Lai, P., Washko, G., Estepar, R., Christiani, D., Li, Y. (2025). Characterization of occupational endotoxin-related small airway disease with longitudinal paired inspiratory/expiratory CT scans. CHEST.
6. **Sun, Y.**, Kang, J., Haridas, C., Mayne, N., Potter, A., Yang, C. J., Christiani, C. D. and Li, Y. (2024). Penalized Deep Partially Linear Cox Models with Application to CT Scans of Lung Cancer Patients. Biometrics, 80(1), ujad024.
7. **Sun, Y.**, Salerno, S., Pan, Z., Yang, E., Sujimongkol, C., Song, J., Wang, X., Han, P., Zeng, D., Kang, J., Christiani, D., and Li, Y. (2024). Assessing the prognostic utility of clinical and radiomic features for COVID-19 patients admitted to ICU: challenges and lessons learned. Harvard Data Science Review, 6(1).
8. **Sun, Y.**, Salerno, S., He, X., Pan, Z., Yang, E., Sujimongkol, C., Song, J., Wang, X., Han, P., Kang, J., Sjoding, M., Jolly, S., Christiani, D., and Li, Y. (2023) Use of machine learning to assess the prognostic utility of radiomic features for in-hospital COVID-19 mortality. Scientific Reports, 13(1), p.7318.
9. **Sun, Y.**, Kang, J., Brummett, C. and Li, Y. (2023). Individualized risk assessment of preoperative opioid use by interpretable neural network regression. The Annals of Applied Statistics, 17(1), p.434.
10. Alvarez, A. A. R., **Sun, Y.**, Kothari, J., Digumarthy, S. R., Byrne, N. M., Li, Y., & Christiani, D. C. (2022). Sex disparities in lung cancer survival rates based on screening status. Lung Cancer, 171, p.115-120.
11. Salerno, S., **Sun, Y.**, Morris, E. L., He, X., Li, Y., Pan, Z., Han, P., Kang, J., Sjoding, M. W., and Li, Y. (2021). Comprehensive evaluation of COVID-19 patient short-and long-term outcomes: Disparities in healthcare utilization and post-hospitalization outcomes. PLOS ONE, 16(10), e0258278.
12. Noshad, M., Choi, J., **Sun, Y.**, Hero, A., and Dinov, I. D. (2021). A data value metric for quantifying information content and utility. Journal of Big Data, 8(1), p.82.
13. Zhang, H., **Sun, Y.**, Zhang, D., Zhang, C., and Chen, G. (2018). Direct medical costs for patients with schizophrenia: a 4-year cohort study from health insurance claims data in Guangzhou city, Southern China. International Journal of Mental Health Systems, 12, p.1-14.

Presentations

SCIENTIFIC MEETINGS

1. Invited Presentation, "Advancing Prognostic and Diagnostic Insights through Statistical Methods for Medical Imaging." ODU Math Awareness Conference, Old Dominion University, Norfolk, VA, 2025.
2. Invited Presentation, "Penalized Deep Partially Linear Cox Models with Application to CT Scans of Lung Cancer Patients." IMS New Researchers Conference, Oregon State University, Corvallis, OR, 2024.
3. Invited Presentation, "Penalized Deep Partially Linear Cox Models with Application to CT Scans of Lung Cancer Patients." International Conference on Econometrics and Statistics, Beijing Normal University, Beijing, China, 2024.
4. Invited Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." American Statistical Association Joint Statistical Meetings, Virtual Event, 2021.
5. Contributed Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." Spring Meeting, ENAR, International Biometric Society, Virtual Event, 2021.

6. Contributed Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." Michigan Student Symposium for Interdisciplinary Statistical Sciences, Virtual Event, 2021.
7. Contributed Presentation, "SpectrumMap: Advanced Computational Phenotypes." MIDAS Symposium, University of Michigan, Ann Arbor, MI, 2018

SEMINARS

8. Invited Presentation, "Penalized Deep Partially Linear Cox Models with Application to CT Scans of Lung Cancer Patients." Department of Mathematics, William & Mary, Williamsburg, VA, 2022.

Grants

1. William & Mary, PI: Yuming Sun
Jun 2024 - Sep 2025. Amount: \$5,000
Estimating Heterogeneous Lung Cancer Treatment Effects on Survival Outcomes via Causal Deep Learning

Teaching

William & Mary

Math 452/552: Mathematical Statistics	Fall 2025
Math 351: Probability & Statistics for Scientists	Fall 2024
Math 459: Survival Analysis	Spring 2024, 2025
Math 106: Elementary Probability & Statistics	Spring 2024
Math 106: Elementary Probability & Statistics	Fall 2023, Spring 2024

University of Michigan

Biostat 601: Probability And Distribution Theory (Teaching Assistant)	Fall 2018
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Service

Department of Mathematics, William & Mary

- Colloquium and Seminar Committee	2023
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Department of Biostatistics, University of Michigan

- Faculty Search Committee	2022
- Health Data Science Committee	2020

Referee

- Biometrics
- BMC Health Services Research
- Electronic Journal of Statistics
- Journal of Statistical Computation and Simulation
- Journal of Psychosocial Oncology
- Statistics in Medicine

Memberships

Institute of Mathematical Statistics	Since 2021
American Statistical Association	Since 2020
International Biometrics Society (Eastern North American Region)	Since 2020