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

1. **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.
2. **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).
3. **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.
4. **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.

5. 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.
6. 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.
7. 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.
8. 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.

Submitted

- **Sun, Y.**, Kang, J., Zhang, F., Wang, H., Lai, P., Washko, G., Estepar, R., Christiani, D., Li, Y. Characterization of occupational endotoxin-related small airway disease with longitudinal paired inspiratory/expiratory CT scans. Chest. Under review for Chest.

Presentations

SCIENTIFIC MEETINGS

1. 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.
2. 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.
3. Invited Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." American Statistical Association Joint Statistical Meetings, Virtual Event, 2021.
4. Contributed Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." Spring Meeting, ENAR, International Biometric Society, Virtual Event, 2021.
5. Contributed Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." Michigan Student Symposium for Interdisciplinary Statistical Sciences, Virtual Event, 2021.
6. Contributed Presentation, "SpectrumMap: Advanced Computational Phenotypes." MIDAS Symposium, University of Michigan, Ann Arbor, MI, 2018

SEMINARS

7. 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 351: Probability & Statistics for Scientists	Fall 2024
Math 459: Survival Analysis	Spring 2024
Math 106: Elementary Probability & Statistics	Spring 2024
Math 106: Elementary Probability & Statistics	Fall 2023

University of Michigan

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

Service

Department of Mathematics, William & Mary

- Colloquium and Seminar Committee 2023

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