

# YUMING SUN

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## Research Interests

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

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

## Education

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**University of Michigan**, Ann Arbor, MI

Ph.D. in Biostatistics. Advisor: Yi Li and Jian Kang 2023

Dissertation Title: Deep Learning for Large-Scale and Complex-Structured Biomedical Data

M.S. in Biostatistics 2019

**Sun Yat-sen University**, Guangzhou, China

B.Med. in Preventive Medicine 2017

## Professional Experience

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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

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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

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Published:

- **Sun, Y.**, Haridas, C., Yang, C. J., Christiani, C. D., Kang, J. and Li, Y. (2023). Penalized Deep Partially Linear Cox Models with Application to CT Scans of Lung Cancer Patients. *Biometrics in press*.
- **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. (2023). 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).
- **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.
- **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.

- 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.
- 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.
- 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.
- 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

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### SCIENTIFIC MEETINGS

- Invited Presentation, "Penalized Deep Partially Linear Cox Models with Application to CT Scans of Lung Cancer Patients." International Conference on Econometrics and Statistics, Waseda University, Tokyo, Japan, 2023.
- Invited Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." American Statistical Association Joint Statistical Meetings, Virtual Event, 2021.
- Contributed Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." Spring Meeting, ENAR, International Biometric Society, Virtual Event, 2021.
- Contributed Presentation, "Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression." Michigan Student Symposium for Interdisciplinary Statistical Sciences, Virtual Event, 2021.
- Contributed Presentation, "SpectrumMap: Advanced Computational Phenotypes." MIDAS Symposium, University of Michigan, Ann Arbor, MI, 2018

### SEMINARS

- 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.

## Teaching

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### William & Mary \* *upcoming*

*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
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## Service

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### Department of Mathematics, William & Mary

- Colloquium and Seminar Committee 2023

**Department of Biostatistics, University of Michigan**

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|---------------------------------|------|
| - Faculty Search Committee      | 2022 |
| - Health Data Science Committee | 2020 |

**Referee**

- Statistics in Medicine
- BMC Health Services Research
- Journal of Psychosocial Oncology
- Biometrics

**Memberships**

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