Department of Biostatistics and Medical Informatics Seminar

Yu Shen, PhD

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University of Texas M.D. Anderson Cancer Center

Friday, February 21, 2025

12:00-1:00 pm

Biotech Center Auditorium *or* via Zoom Link

https://uwmadison.zoom.us/j/99879638765?pwd=wbtqxoucEFIlPVCVc9SFbvKB1Av7Xk.1

Passcode: 343271

Integrating Multiple Data Sources: Enhancing Precision Medicine Risk Prediction

Abstract: Large cancer registries have become widely available in clinical research as a complement to improving the estimation of the precision of individual death risks for cancer patients. In particular, for rare types of cancer, it is desirable to combine multiple sources of data, such as primary cohort data and aggregate information derived from cancer registry databases. This integration of data can enhance statistical efficiency and accuracy in risk prediction, but it also presents statistical challenges due to the incomparability between different data sources. We develop adaptive estimation procedures that use the combined information to determine the degree of information borrowing from the aggregate data of the external resource. We apply the proposed methods to evaluate the long-term effects of several commonly used treatments for inflammatory breast cancer by tumor subtype, combining the MD Anderson inflammatory breast cancer patient cohort with external data.

Bio: Dr. Yu Shen is a Professor of Biostatistics at the University of Texas M.D. Anderson Cancer Center, where she holds the Conversation with a Living Legend Professorship. She received her Ph.D. in Biostatistics from the University of Washington in 1994 and has been a faculty member at M.D. Anderson since 1995, following one year of postdoctoral training at Fred Hutchinson Cancer Research Center. Her research spans biostatistical methodology in health services research, cancer early detection, and personalized cancer treatment. She has developed statistical methods in areas such as data integration, modeling the natural history of cancer, adaptive clinical trial designs, and modeling survival data with biased sampling, with continuous NIH grant support for her statistical method development and health economics research. She is a Fellow of the American Statistical Association and a Fellow of the Institute of Mathematical Statistics, in addition to serving as Associate Editor for four biostatistics journals.

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