

Division of Biostatistics, IHE  
Medical College of Wisconsin presents



# Accelerated fitting of joint models

By: Yan Gao, PhD

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Tuesday, November 15<sup>th</sup> | 3:30PM - 4:30PM

*Computational methods have underpinned numerous technological developments and disciplinary advances. As a result, algorithms at the heart of computing have played an essential role across and beyond disciplines. We propose a novel algorithm to synthesize a series of dependent computing methods in one united framework. We improve the computational efficiency of likelihood-based methods with two nested integrals when the standard methods for double integral approximation are not feasible. Our proposed algorithm can be used for joint models, which have gained popularity in biomedical research by jointly modeling survival and longitudinal outcomes. Publicly available primary biliary cirrhosis data is used to illustrate the computational benefits of the proposed algorithm.*



### Yan Gao, PhD

Dr. Yan Gao joined the Division of Biostatistics in the fall of 2021. Her research interests include Bayesian survival analysis and experimental design in clinical trials. She is interested in developing statistical methodologies in joint models, multiple testing procedures, and accelerating MCMC algorithms. She is also interested in applied mathematics and medicine. Numerical integration and algorithm design are her mathematical focus. In medicine, her interests include hematology-oncology and immunology. Her collaborative research groups at MCW include the Department of Medicine and the Cancer Center. As a statistician, she participates in NIH grant proposal writing and provides statistical expertise regarding study design and analysis, including observational studies and clinical trials. She is a member of the Scientific Review Committee and participates in the reviews of cancer-related protocols.

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