Department of Biostatistics and Medical Informatics Seminar

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Friday, October 3, 2025
12:00-1:00 pm
Morgridge Hall Seminar Room 7560 or
Zoom:
https://uwmadison.zoom.us/j/99879638765?pwd=wbtqxoucEFIlPVCVc9SFbvKB1Av7Xk.1
Passcode: 343271

What's the Point of Interpretability in Biomedical AI?

Abstract: AI models, especially foundation model–based approaches, have become remarkably effective across a wide range of biomedical and scientific tasks. Their success raises a natural question: should we still care about interpretability?

In this talk, I will present a system-level argument for interpretability in biomedicine. In this view, interpretability is valuable for at least three reasons: (1) information acquisition, by identifying which measurements are most worth collecting; (2) modularity, by enabling models to be tested, swapped, and reused; and (3) value alignment, by ensuring that model reasoning connects to trustworthy interventions. I will illustrate these roles with examples from maternal health (where interpretability revealed a new metric for risk assessment), treatment effect heterogeneity (where explanations pointed to intervention strategies), and personalized gene networks (where modularity enables reuse of information across contexts).

Bio: Benjamin Lengerich is an Assistant Professor in Statistics at UW-Madison. His research in machine learning and computational biology emphasizes the use of context-adaptive models to understand complex diseases and advance precision medicine. Through his work, Ben aims to bridge the gap between data-driven insights and actionable medical interventions. He holds a PhD in Computer Science and MS in Machine Learning from Carnegie Mellon University, where he was advised by Eric Xing. His work has been recognized with spotlight presentations at conferences including NeurIPS, ISMB, AMIA, and SMFM, and is currently financially supported by the Alana Foundation.

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