

CAUSAL AND GRAPHICAL MODELS FOR SCIENTIFIC APPLICATIONS

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ABSTRACT

With increasing prevalence of data-driven computational tools, novel methods for uncovering complex nonlinear relationships between otherwise-disparate data have achieved tremendous improvements on a range of tasks, including but not limited to problems in computational mechanics. However, measuring causality, and not merely correlation, among these relationships remains a difficult task: many theoretical, practical, and computational issues persist, particularly concerning graphical model recovery, causal attribution, confounding relationships, measurement error, causal time-series models, and complex causal mechanisms.

This minisymposium will convene world-class researchers in a forum to present advances in graphical modeling, causal inference, causal discovery, and structured causal models, drawing upon expertise in machine learning, statistics, scientific computing, and specific domain applications in mechanics and materials modeling.