

**University of California, Irvine
Statistics Seminar**

Confidence sets for Causal Discovery

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6011 Donald Bren Hall**

Causal discovery procedures are popular methods for discovering causal structure across the physical, biological, and social sciences. However, most procedures for causal discovery only output a single estimated causal model or single equivalence class of models. We propose a procedure for quantifying uncertainty in causal discovery. Specifically, we consider linear structural equation models with non-Gaussian errors and propose a procedure which returns a confidence sets of causal orderings which are not ruled out by the data. We show that asymptotically, the true causal ordering will be contained in the returned set with some user specified probability.

Joint work with Sam Wang and Mathias Drton.