



THE UNIVERSITY OF
CHICAGO

Computational and Applied Mathematics
&
Statistics Student Seminar

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Robust Bridge Sampling: Diagnostics for Influence, Conditioning, and Proposal
Variance

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12:30 PM

DSI, 5460 S University Ave,
Room 105, Chicago, IL 60615

ABSTRACT

“Bridge sampling is a popular tool for estimating marginal likelihoods and Bayes factors; while the estimator is efficient when its bridge function and proposal are well tuned, hard to diagnose failures frequently arise. Three practical diagnostics are proposed to address these modes of failure:

- (i) a jackknife influence diagnostic that detects when a small subset of draws controls the estimate and provides a consistent variance estimator;
- (ii) an iteration-conditioning diagnostic that monitors the stability of the fixed-point map and yields transparent stop/continue rules; and
- (iii) a proposal-fitting variance diagnostic that quantifies the contribution of proposal-parameter uncertainty to the error in the evidence estimate.”