10 Conclusions

We propose new lifted relational variational inference algorithms for relational hybrid models. Our main contributions are two folds: (1) in theory, we show that a relational model, which can represent large-scale systems, is accurately represented by a variational relational model; (2) our lifted algorithms are the first to solve inference problems without referring ground rvs for non-Gaussian continuous models. Experiments show that our method outperforms the existing possible methods in various cases including a real-world environmental problem.

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