

Appendix B. Pot-luck challenge: FACT SHEET.**Fan search with Bayesian scoring for directionality applied to
LOCANET challenge****Robert E. Tillman**

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Task(s) solved:
LOCANET

Method:

For the milestone, we submitted results for the REGED and CINA datasets. To learn a depth 3 causal network around the target variable, we first modified the Markov blanket fan search (MBFS) algorithm (Ramsey, 2006) to consider variables at a depth 3 rather than stopping once the Markov blanket is discovered. Since the MBFS algorithm tends to be accurate in detecting the presence of edges, but not always accurate in detecting directionality, we used the skeleton generated by MBFS and used Bayesian scoring methods to determine the directionality of the edges. Simple heuristics were used with exhaustive search to determine a high scoring directed model with the skeleton returned by MBFS.

NOTE: These results were only preliminary. We were unable to work further on this task the milestone date due to time constraints. We plan to investigate more sophisticated methods in the future.

Results:

Dataset/Task	Score 1
REGED	0.34
CINA	1.74

Table 1: Result table.

References

Joseph Ramsey. A pc-style markov blanket search for high dimensional datasets. Technical Report CMU-PHIL-177, Carnegie Mellon University, February 2006.