Homework Assignment #2

Due date – Oct. 4, 2018 (Thu), in class.

Problem 1. Finding d-separated nodes. (72 points)

Assume that we have a Bayesian network graph $\mathcal{G}$. Given a set of observed nodes $\mathbf{E}$, we want to find the set of nodes $\mathbf{Y}$ that contains all nodes that are d-separated from the source node X.

- Implement the algorithm $\mathbf{Y}$ = d_separated $(\mathcal{G}, X, \mathbf{E})$ that finds all d-separated nodes.
- Submit your code to satishpasumarthi@tamu.edu (CC: bjyoon@ece.tamu.edu) by **email** with the subject "ECEN760: HW2 Problem 1 Code Submission."
- Also **print out** the code and submit it with your homework solutions.
- *** NOTE *** *Your code should be well-commented and easy to read to get full credit.*

Problem 2. Finding d-separated nodes. (28 points)

Verify your solutions in HW1 problem 3 using your algorithm. More specifically:

- For problems 3(a)–3(e), find all nodes that are d-separated from the source node using your algorithm, and find out whether the target node is included in the predicted set $\mathbf{Y}$.
- For parts 3(f)–3(g), compare the nodes obtained from your algorithm with your original solution.