**CMPT-726**

**Assignment 3: Graphical Models / Recurrent Neural Networks**

**Due November 15 at 11:59pm**

1. **Graphical Models (22 marks)**
   1. Draw a simple Bayesian network for this domain.
   2. Write the factored representation for the joint distribution p(A, L, G, E, T) that is described by your Bayesian network.

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1.3. Supply all necessary conditional distributions. Provide the type of distribution that should be used and give rough guidance / example values for parameters (do this by hand, educated guesses).

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1.4.Suppose we had a training set and wanted to learn the parameters of the distributions using maximum likelihood. Denote each of the N examples with its values for each random variable by xn = (an, ln, gn, en, tn). The training set is {x1, x2, . . . , xN }. Which elements of the training data are needed to learn the parameters for p(A|paA)? Why?1 Start by writing down the likelihood and argue from there.

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1. **KL Divergence (20 marks)**
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1. **Gated Recurrent Unit (10 marks)**

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1. **Attention Models (10 marks)**

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4.2.ANS:

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