COMP9444 Neural Networks and Deep Learning

Quiz 5 (Recurrent Networks)

This is an optional quiz to test your understanding of the material from Week 5.

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1. Explain the format and method by which input was fed to the NetTalk system, and the target output.
2. Explain the role of the *context layer* in an Elman network.
3. Draw a diagram showing the hidden unit activations of a Simple Recurrent Network with two hidden units trained on the $a^n b^n$ task, as it processes $a^8 b^8$.
4. Draw a diagram of an LSTM and write the equations for its operation.
5. Draw a diagram of a Gated Recurrent Unit and write the equitions for its operation.
6. Briefly describe the problem of *long range dependencies*, and discuss how well each of the following architectures is able to deal with long range dependencies:
    a. sliding window approach
    b. Simple Recurrent (Elman) Network
    c. Long Short Term Memory (LSTM)
    d. Gated Recurrent Unit (GRU)

Make sure you try answering the Questions yourself, before checking the Sample Answers