Assignment 3

1. Compare Feed-Forward Neural Network and Recurrent Neural Network?
2. Describe the types of RNNs?
3. Explain general layout of LSTM cell?
4. Describe LSTM gates?
5. Components of LSTM units?
6. Advantages of LSTM?
7. Explain encoder decoder architecture?
8. Short note on sequence to sequence model?
9. Where would you use sequence to sequence and why?
10. Explain Recursive Neural Network?
11. Explain Network architecture of Recursive Neural Network?
12. With diagram describe difference between Recursive Neural Network and Recurrent Neural Network?
13. Describe types of Recursive Neural Network?
14. Explain application of Recursive Neural Network?

Assignment 4

1. Short note on autoencoder?
2. With diagram explain architecture of autoencoder?
3. What are some parameter that you need to define while training an autoencoder?
4. Applications of auto encoder?
5. Short note on undercomplete autoencoder?
6. Short note on regularized autoencoder?
7. Describe convolution autoencoder?
8. Describe sparse autoencoder?
9. Describe stacked autoencoder?
10. Describe deep autoencoder?
11. Describe denoising autoencoder?
12. Describe variational autoencoder?
13. Short note stochastic autoencoder?
14. Short note on contractive autoencoder?

Assignment 5

1. what is representation?
2. short note on representation learning?
3. Why do you need representation learning?
4. Explain how representation learning works?
5. How do deep neural networks carryout representation learning?
6. How can you use an autoencoder for representation learning?
7. Explain few factors that may be used for getting good representation?
8. Write a short note on greedy layer-wise pre training?

9. Describe the meaning of each word in greedy layer-wise pretraining?
10. Write greedy layer -wise unsupervised pre training algorithm?
11. List advantages and disadvantages of unsupervised pretraining?
12. What do you mean by transfer learning and domain adaption?
13. With a diagram explain the concept of transfer learning in machine learning?
14. With an example explain the concept of domain adaption?
15. Describe the advantages of transfer learning?
16. What are three questions that you answer during transfer learning?
17. Describe the approaches that you can take to answer “what to transfer” during transfer learning?
18. Describe types of transfer learning?
19. Write a short note on multi task learning?
20. Explain the types of deep transfer learning?
21. Write a short note on one-shot learning and zero-shot learning?

Assignment 6

1. Describe a few applications of deep learning?
2. Write a short note on computer vision?
3. Write a short note on speech recognition?
4. Write a short note on NLP?
5. Write a short on recommendation engines?
6. Write a short note on social network analysis (SNA)?
7. What are some of major application of SNA?