

Introduction to Machine Learning

Lab 6: Recurrent neural network

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- 1. When predicting values using sine wave data, is there a performance difference between the model that only contains Dense layers and one that includes an RNN layer? Which performs better?**

According to the result, the model that only contains Dense layers is much worse than the model that includes an RNN layer. (Loss without RNN after 20 epochs: 0.785, Loss with RNN after 20 epochs: 0.155)

- 2. Have you tried stacking two consecutive RNN layers in the model? How would you configure the parameters for the second RNN layer if the first RNN layer is defined as RNN (1, 16)? Briefly explain your reasoning.**

I didn't try stacking two consecutive RNN layers in my model because my model had an excellent performance with only a single RNN layer. If the first RNN layer is defined as RNN (1, 16), then the second RNN layer must be defined as RNN (16, dense units).

- 3. What would be the effects with the larger size of hidden units in RNN layer?**

I've found that the model with the larger size of hidden units in RNN layer performs better than the model with the smaller size of hidden units. But it takes more time training the model. Therefore, I finally chose RNN (1, 128) to build my model.