

**COMP 411, Homework 8: *Working with Tensorflow***  
**Due by 11:59pm on November 23, 2021**

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1. GETTING FAMILIAR WITH TENSORFLOW AND KERAS API

It is your choice whether you want to install tensorflow locally (<https://www.tensorflow.org/install>) on your laptop or use google colab. Your goal is to read through and work through the following tutorials.

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https://www.tensorflow.org/tutorials/quickstart/beginner
https://www.tensorflow.org/tutorials/keras/classification
https://www.tensorflow.org/tutorials/keras/regression
https://www.tensorflow.org/tutorials/keras/overfit_and_underfit
```

2. TITANIC PREDICTIONS AGAIN

Set up and train a neural network in Tensorflow to predict Titanic survivors using the data from the previous two homeworks. Show the training loss over time, and the prediction performance. Try adding a dropout rate of for example 0.2: does this improve the performance?

3. TRAINING A NEURAL NETWORK USING YOUR OWN DATASET

Set up and train a neural network in Tensorflow to predict a continuous valued feature in a dataset you have been using. Try several different numbers of hidden nodes and learning rates. how the training loss over time, and the prediction performance. What is the best performance you are able to achieve? What were the settings of the neural network that achieved this?

4. TAKEAWAYS

What were the most important things that you learned from the tutorials? What things did you realize were important to do after having gone through the process of training and testing your own neural network with your own data using Tensorflow?