

AI-ML for Beginners

Homework 3

Phone Recognition

In this part of the assignment, you will implement simple model for phoneme recognition with deep learning framework and answer questions.

Question 1. Open the following colab notebook and complete the phoneme recognition assignment:

<https://colab.research.google.com/drive/1C6EgvwBz02KpStgPWC3GvZqr4u82HLrw?usp=sharing>

Follow all the steps specified in it. Include link to your solved notebook in your submission. Some parts of the notebook are optional and will not be graded.

Question 2. Explore different number of layers and hidden sizes for a window size of 5. Which one worked better?

Question 3. Explore different window sizes and report the one that worked best for you. Does increasing the context help?

End-to-End Speech Recognition Toolkit

Question 4. Open the following colab notebook and complete the end-to-end ASR recognition: .

https://colab.research.google.com/drive/1ecWiAfywg12j8Ss9YULN-HJm8Wk2wc_I?usp=sharing

Follow all the steps specified in it. Include link to your solved notebook in your submission. Some parts of the notebook are optional and will not be graded.

Question 5. Explore different language model weights ($\lambda = \{0.0, 0.1, 0.2, 0.3\}$), list the character error rate (CER) for each weight, and report the one that worked best (minimum CER) for you. Does the language model fusion help? Does increasing the language model weight always help?