Assignment 4 [100 Points]

Due March 22, 2023 11:59 PM

Problem 1 - Sound Digits Classification [100 points] As a coder, you are asked to code a keras model proposed by researchers from a local company, which is used to recognize digits sound clips. The architecture of network is showed below:

Depth	Layer	Filters / Shape / Dropout Ratio	Kernel Size	Padding	Activation	Recurrent Activation
1	Resize	32x32	-	-	-	-
2	Normalization	-	-	-	-	-
3	Conv2D (conv1)	64	3	same	relu	-
4	BatchNormalization	-	-	-	-	-
5	Maxpooling2D	-	-	-	-	-
6	Conv2D (conv2)	64	3	same	relu	-
7	BatchNormalization	-	-	-	-	-
8	Maxpooling2D	-	-	-	-	-
9	Permute	(2, 1, 3)	-	-	-	-
10	Reshape	(-1, shape[1], shape[2] * shape[3])	-	-	-	-
11	GRU (gru1)	512	-	-	tanh	sigmoid
12	GRU (gru2)	512	-	-	tanh	sigmoid
13	Dropout	0.5	-	-	-	-
14	Dense	10	-	-	softmax	-

Download A4_P1.py on Canvas and rename it as A4_P1_[your AccessID].py. Code the missing part in both of the files. Train and test your model. Report your result as a comment in the Python file. Your accuracy must be at lease 85% of accuracy. Rename the output result image as A4-P1-result-[your AccessID].jpg. Rename the Tensorboard screenshot image as A4-P1-tb-[your AccessID].jpg.

Submit the modified .py file and .jpg files to Canvas.

Submit all your files to Canvas.