NN for Classification of Floor Levels – Model Development

EECE-4710 IoT and Machine Learning

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1. Objective

Use the dataset you generated in one of the previous assignments to develop and evaluate a NN model for classification of floor levels. The model estimates the floor level where the input data is collected.

2. Assignment

Using the techniques that you learned so far in this course, develop a NN model to do classification into four classes – the floor levels in the engineering building. Use the dataset that you generated in one of your previous assignments.

Your solution must be included with your report as a separate Jupyter Notebook (created in Google Colab) or a regular Python program (created in Anaconda Spyder). Your code should have comments to describe the main elements of your code.

3. Deliverables

You must write (typed) a report and upload it as a PDF file on D2L. The report should be named "**LastName_hw9.pdf**". The report should include the following sections:
1) Title + course info + your name
2) **Summary.** Describe in one paragraph what the objective of the assignment is.
3) **Model Development.** Describe your final NN model and the steps and techniques you used to optimize it. Include at least a plot or some other type of information that describes or presents information about your dataset; for example a bar-graph plot to show how balanced the dataset is for all four classes. Include essential portions of your code and loss vs. epoch plots.
4) **Testing.** Discuss the testing you did. Include any plots and any other testing results (such as confusion matrix) you generated and discuss them.
5) **Conclusion.** Present your conclusions and describe what issues you encountered and how you solved them.
6) **References.** Include all references that you used, as a numbered list. Cite them in the report itself; do not just list them here.
You should also upload on D2L your code implementation – as a notebook or python program.
Include the code file and the report file into a .zip named "**LastName_hw9.zip**" and upload it on D2L.