National Tsing Hua University
Fall 2023 11210IPT 553000
Deep Learning in Biomedical Optical Imaging
Report Description

1. Cancer Histology Image Classification (100 pts)

In this report, you will delve into the field of medical image analysis by classifying histological images of cancerous tissues. Each sample in the dataset is a 150x150 pixel RGB image representing one of six distinct tissue textures that are commonly identified in cancer histology. Your task is to develop a model that can accurately classify each image into one of the following categories:

Your objective is to use dataset to train a model that can learn to recognize and distinguish between these textures. Ensure you provide additional details as needed, such as the specifics of the dataset, evaluation metrics, expected model performance, submission format, or any particular methods.

2. Report Guidelines

- **Template**: Utilize the provided template for writing your analysis report.
- **Format**: The report should be submitted in PDF, with the file named as “report.pdf”.
- **Content**: Incorporate figures and tables to illustrate your findings (optional) and make your analysis comprehensive and understandable.
- **Page Limit**: Ensure your report is a minimum of 3 **pages** and does not exceed 4 **pages**.

3. Grading Criteria

- **Analysis Depth**: This is our primary focus for grading. We seek a thorough and insightful analysis concerning the impact of changes on the model's performance. It is crucial to base your analysis on the empirical results obtained from your experiments, not on hypotheses or assumptions. Ensure your report express the outcomes of your experiments in a clear and concise manner. We are interested in your analytical skills and the ability to explain the results effectively. We are not grading based on the performance improvements attributed to the changes you made. As such, it is entirely acceptable if the modifications you make do not lead to performance enhancement or significant differences in the results.
- **Report Presentation**: Clarity and structure are paramount, and adherence to the provided template and style is mandatory. A deviation from the template will result in a 5-point deduction.

- **Code for Supporting Report**: The supporting code won't be a focal point during grading unless there is an apparent absence of evidence backing your findings. Clean, readable, and well-commented code is encouraged. If falsification or dishonesty is detected in your results, a 0-point penalty will be imposed for this report section.

5. Submission Details

5.1 Deadline

Submit all components by **23:59, 4th Dec. (GMT+8)**, with timestamps on Github and EEclass being considered.

5.2 Github and EEclass

- **Github**: Create a "report" folder in your repository, "NTHU_2023_DLBOI_HW", containing "report.ipynb" and "report.pdf". Ensure that you run your code and all outputs are saved within the .ipynb files.
- **EEclass**: You are required to submit only the GitHub link of your Homework . Do not upload files directly to EEclass.