UTS

ASSIGNMENT (Individual Work)

40 Marks

CSS3563

Artificial Intelligence

TASK:

1. Search for an online dataset that belongs to Skin Cancer. You can get it from Roboflow or Kaggle. The total number of images should be more than 1000.
2. Divide the dataset into a training set (70%), a validation set (15%), and a testing set (15%).
3. Use the training set and the validation set to train various models such as AlexNet, GoogleNet, ResNet18, ResNet50, ResNet101, DenseNet169, MobileNetV2, MobileNetV3 Small, MobileNetV3 Large, VGG16, and VGG19.
4. Perform hyperparameter tunings on all the models to make sure they are all trained under the best conditions.
5. After training all the models mentioned above, use the testing set to evaluate them. Obtain performance metrics from the evaluation. If your dataset consists of binary class, evaluate using accuracy, recall, true negative rate, precision, and ROC curve. If your dataset consists of multiple classes, evaluate using accuracy, macro recall, and macro precision.
6. Compare the results obtained from different models and propose one that is the most suitable for skin cancer classification.
7. Prepare a technical report to document everything you have done and the results you obtained. The report should contain the following sections:

    a) Abstract
    b) Introduction
    c) Related Works
    d) Methodology
    e) Results and Discussions
    f) Conclusions
    g) References
    h) Appendix (attach all your codes here)

8. The referencing style should be in IEEE format.
9. Submit your report (in PDF format) to google classroom before the due date.