Project Definition

Project Overview

Student provides a high-level overview of the project. Background information such as the problem domain, the project origin, and related data sets or input data is provided.

Ok, it is mentioned in both notebook and medium post (Definition of the problem and preparation).

Problem Statement

The problem which needs to be solved is clearly defined. A strategy for solving the problem, including discussion of the expected solution, has been made.

It is also mentioned in the notebook and medium post including: 1 problem definition, 2 steps to solve it, 3 the results.

Metrics

Metrics used to measure performance of a model or result are clearly defined. Metrics are justified based on the characteristics of the problem.

All the metrics in the model are clearly defined.

Analysis

Data Exploration

Features and calculated statistics relevant to the problem have been reported and discussed related to the dataset, and a thorough description of the input space or input data has been made. Abnormalities or characteristics about the data or input that need to be addressed have been identified.

In this project, there are not many statistics to explore. But I still calculate the accuracies for both human face detector and dog detector.

Data Visualization

Build data visualizations to further convey the information associated with your data exploration journey. Ensure that visualizations are appropriate for the data values you are plotting.

This project does not need many visualizations but focuses on building different CNN model architecture. I nearly show all the architectures in the projects.

Methodology

Data Preprocessing

All preprocessing steps have been clearly documented. Abnormalities or characteristics about the data or input that needed to be addressed have been corrected. If no data preprocessing is necessary, it has been clearly justified.

I follow the instructions in the notebook and complete all the tasks.

Implementation

The process for which metrics, algorithms, and techniques were implemented with the given datasets or input data has been thoroughly documented. Complications that occurred during the coding process are discussed.

I follow the instructions in the notebook and complete all the tasks. All the process are documented thoroughly in the notebook.

Refinement

The process of improving upon the algorithms and techniques used is clearly documented. Both the initial and final solutions are reported, along with intermediate solutions, if necessary.

I follow the instructions in the notebook and complete all the tasks. I test all the solutions from CNN without transfer learning to all five pre-trained model transfer learning.

Results

Model Evaluation and Validation

If a model is used, the following should hold: The final model’s qualities — such as parameters — are evaluated in detail. Some type of analysis is used to validate the robustness of the model’s solution.

Alternatively a student may choose to answer questions with data visualizations or other means that don't involve machine learning if a different approach best helps them address their question(s) of interest.

I use the accuracy to evaluate the models and improve the accuracy from 8% to 80%.

Justification

The final results are discussed in detail.

Exploration as to why some techniques worked better than others, or how improvements were made are documented.

I have stated in the medium post that transfer learning is better than our own CNN model from scratch because the architecture of the pre-trained neural network used in the transfer learning has been trained and tested much better than our own CNN model built from scratch.

Conclusion

Reflection

Student adequately summarizes the end-to-end problem solution and discusses one or two particular aspects of the project they found interesting or difficult.

I have passed all the requirements of accuracy and select the best model to identify. I find this project is very interesting and already discuss it in the whole notebook.

Improvement

Discussion is made as to how at least one aspect of the implementation could be improved. Potential solutions resulting from these improvements are considered and compared/contrasted to the current solution.

I have come up with three improvements in both Github and Medium:

1. Try more model architectures on Xception-model
2. Try more optimizers and parameters in the model selection
3. Involve the training data augmentation to reduce the overfitting problem.

Deliverables

Write-up

If the student chooses to provide a blog post the following must hold: Project report follows a well-organized structure and would be readily understood by a **technical** audience. Each section is written in a clear, concise and specific manner. Few grammatical and spelling mistakes are present. All resources used to complete the project are cited and referenced.

Please see my Medium post. I believe it satisfies the requirements.

Github Repository

Student must have a Github repository of their project. The repository must have a README.md file that communicates the libraries used, the motivation for the project, the files in the repository with a small description of each, a summary of the results of the analysis, and necessary acknowledgements. If the student submits a web app rather than a blog post, then the Project Definition, Analysis, and Conclusion should be included in the README file, or in their Jupyter Notebook. Students should not use another student's code to complete the project, but they may use other references on the web including StackOverflow and Kaggle to complete the project.

Please see my Github Repository. I believe it satisfies the requirements.

Best Practices

Code is formatted neatly with comments and uses DRY principles. A README file is provided that provides. PEP8 is used as a guideline for best coding practices.

Best practices from software engineering and communication lessons are used to create a phenomenal end product that students can be proud to showcase!

Please check my code. I believe it satisfies the requirements.