CV703: Assignment I

Image classification

Type: Group Assignment.

Maximum number of students per group: 3.

Assignment 1 carries 10 marks in total. Assignment 1 consists of three sub-tasks.

1. To design, train, and evaluate an image classification method on CUB bird's dataset. This dataset contains 200 classes.
2. To design, train, and evaluate a classification method on a combined set of (CUB birds + FGVC Aircraft). It will have 200 + 100 = 300 classes
3. To design, train, and evaluate a classification method on a FoodX dataset. This dataset contains 251 classes.

It is recommended to use only one baseline architecture, and a maximum of two architectures is allowed. In both cases, the results on the three sub-tasks should be reported.

Marks distribution:

- Base marks=6 will be awarded if working with straight-forward solution (transfer learning on existing backbone ResNet, DenseNet etc.).
- Base marks + 3 will be awarded if the solution includes beyond a simple transfer learning (e.g., hybrid version of CNN (eg. ConvNeXt) or Transformers architecture etc.). ***The proposed solution should not increase the baseline FLOPs, memory, or parameters by more than 5%.*** For FLOPs computation, you can use any repo of your choice after validating its correctness on known baselines.
- Base marks + 3 + 1 will be awarded if the solution exceeds over a pre-defined threshold set in terms of average classification accuracy on sub-task two.

Deadlines: The deadline to submit the technical report summarizing all the details along with the respective code and a teaser video is by the end of January 30, 2024 (23:59 UAE time). All the required material should be zipped in one folder (per group).

The dataloaders for all three sub-tasks are provided on Moodle.

The datasets are also available. (/apps/local/shared/CV703/datasets)

Assignment Deliverables:

For all the tasks, there are three deliverables: a completed code, a technical report, and teaser video. The technical report (no longer than 3 pages) is expected to describe the introduction to the problem, contributions, proposed architecture, implementation details, and a discussion about the results obtained.

Submission Procedure: All the required material (technical report, video, and code) should be submitted in one zipped folder per group. In case the zipped folder exceeds the Moodle upload limit, please contact the lab supervisors. The deadline to submit all the required material is by the end of January 30, 2024 (23:59 UAE Time).