Master in Computer Vision Barcelona

M5 Project: Cross-modal Retrieval

Week 4

Image Retrieval

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P4 Image retrieval

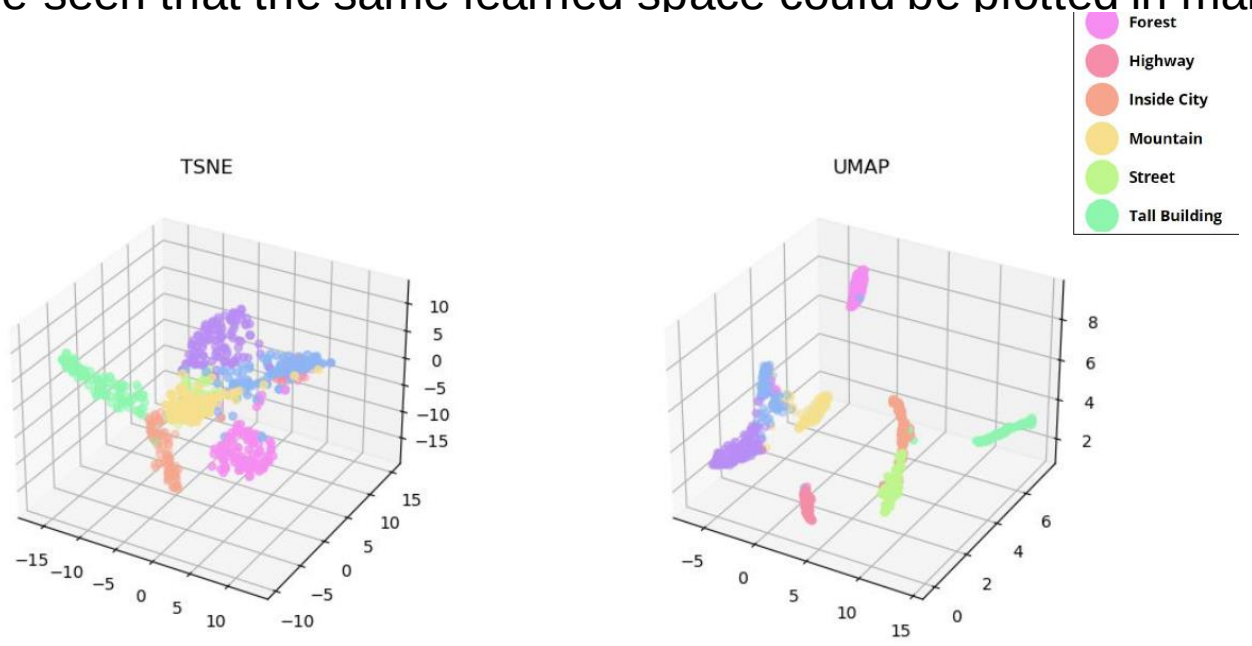
- Train on classification obtains quite good results on retrieval.
  - Last layers of classification networks with descriptive features.
  - Sometimes even better than metric learning approaches.
    - Hyperparameters
    - Easy dataset

- Triplet networks better than Siamese networks

P4 Image retrieval

Data visualization

- Good tool that helps interpreting the learned space
  - If your representation is not separable in 2D (or 3D) space, doesn't mean that is not separable in your original space.
  - You have seen that the same learned space could be plotted in many ways.



P4 Image retrieval

Your paper/report/presentation should follow a coherent story.

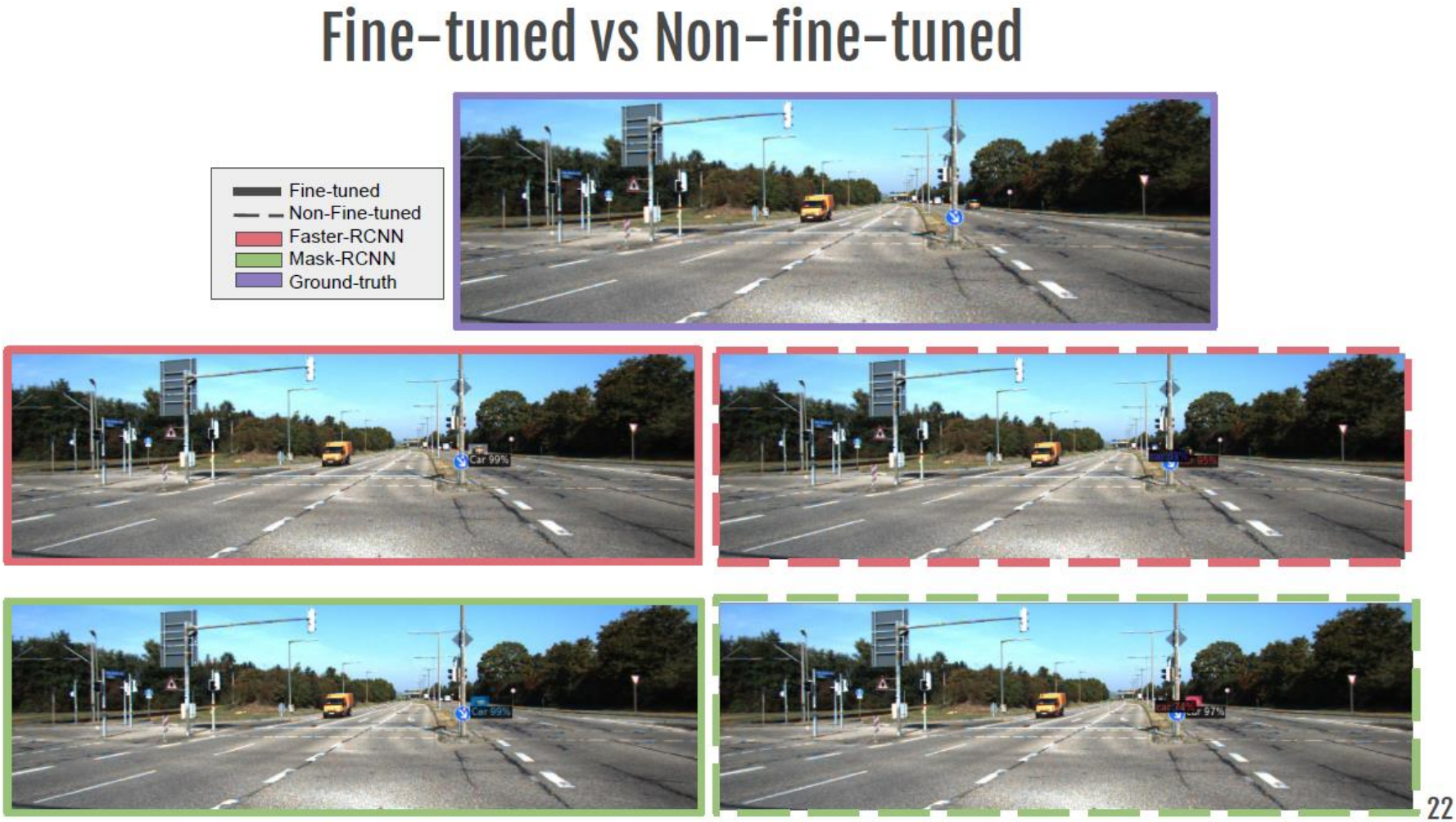
- Introduction, core and conclusions.
- Quantitative and qualitative results

The reader should reach the same conclusions if all the information in the introduction and core have been given.

Example:

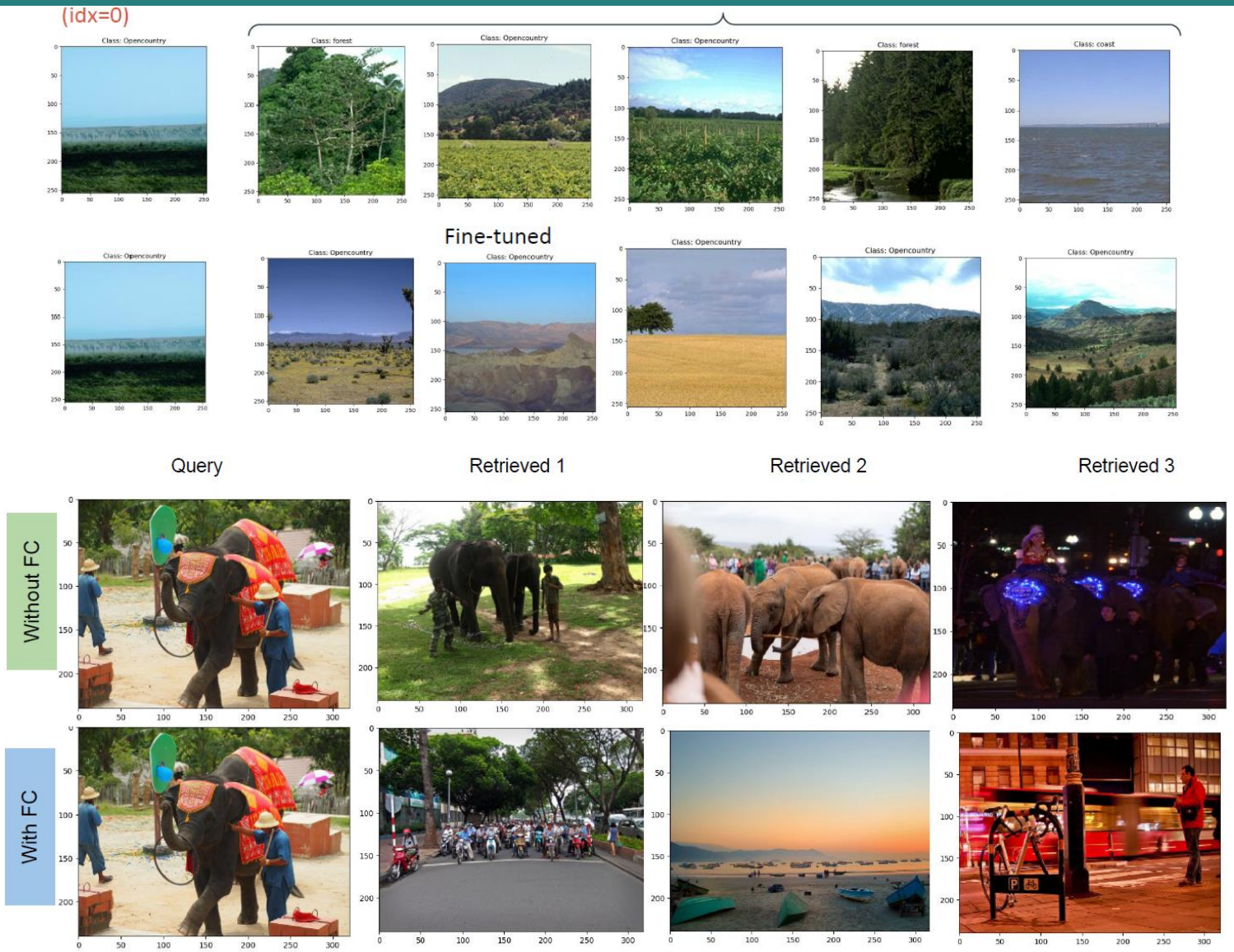
- We use hard-mining strategy…
  - The model perform worse.
  - Why? What is the mining strategy? Is the mining performed correctly? Is a design problem or an implementation problem?
  - Describe the mining strategy.
  - Show examples of hard-negatives (Might be too hard to learn).
  - Show loss graphics

P4 Image retrieval



Using the same images helps to better assess model's/experiments' differences

P4 Image retrieval



Report – Final version

- **Group 1**: Ok.
- **Group 2**: Add tables with main quantitative results and figures showing qualitative results. If necessary, you can add one extra page, but revise format of the paper since top and bottom margins seem to be too large.
- **Group 3**: Revise coherence in section numbering. Include COCO in description of datasets. Extend description of Out-of-Context dataset. Include more details on the implementation details of the experiments on out of context and other challenges. Good including additional details on the appendix.
- **Group 4**: Include more details on the implementation details of the experiments on out of context and other challenges. If you need more space, you can reduce section on implementation details of the detection and segmentation methods.
- **Group 5**: Write the abstract. Related work: reorganize subsection 2.3 - state of the art models: some of the methods are one-stage and some other fall into other categories that you can also put in different subsections (transformer-based, instance segmentation, …). Include some description of implementation details of the methods and the experiments on challenges.
- **Group 6**: Report should be focused only on detection and segmentation. In addition, the part of retrieval is incomplete (no state-of-the-art, no methodology, no results on COCO). Better remove it and extend methodology of detection and segmentation methods and include implementation details on the experiments on challenges.
- **Group 7**: Ok, although you can give some more details on the architecture of the methods in sections 3.1 and 3.2