Master in Computer Vision Barcelona

M5 Project: Cross-modal Retrieval

Week 1. Introduction to Pytorch

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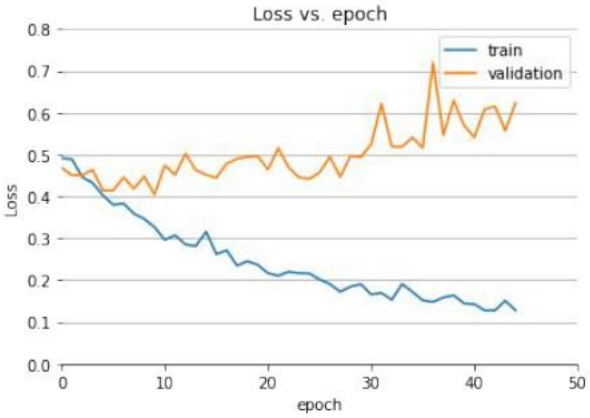
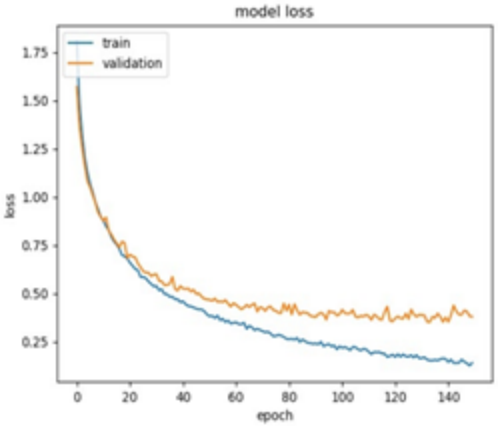
P1 Introduction to Pytorch

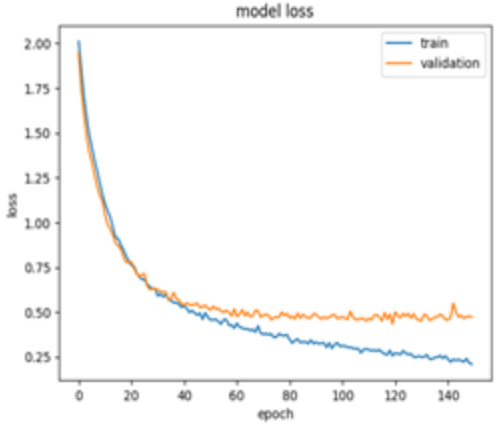
Overfitting vs model generalization limitations



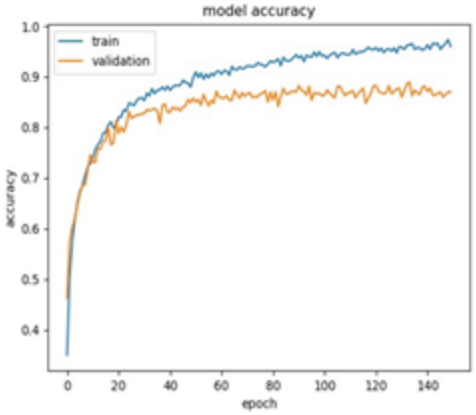
Keras



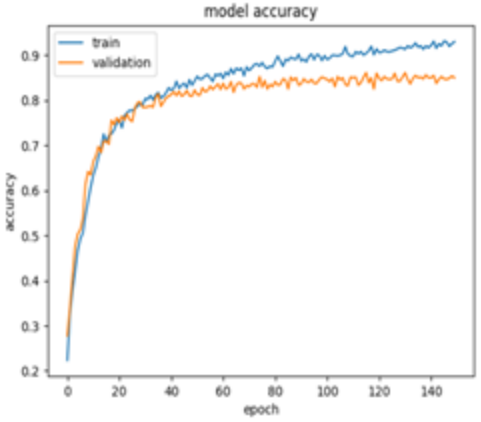
Pytorch



Keras



Pytorch



P1 Introduction to Pytorch

We are doing a comparison, so the model architecture definition is expected:

- Good job teams that put a **block diagram** of the model, easier to follow than **code screenshots**.
  - Even though exists tools to create diagrams from code. You can create it manually.

- Good job teams that specified properly which **hyperparameters** were used for the experiments.
- Good job teams that tried to **explain** and even **correct** why the difference between the curves from both models.

P1 Introduction to Pytorch

We are doing a comparison, so the model architecture definition is expected:

- Several groups considered efficiency in the method implementation.
  - Good job teams that calculated the **number of parameters** from both models. It is a good way to compare how close are our models.
  - No group has computed the **training / inference time.**
    - Although some groups said Pytorch was '***faster***'.

TF training.	Pytorch training.
10s/epoch	**50s/epoch**

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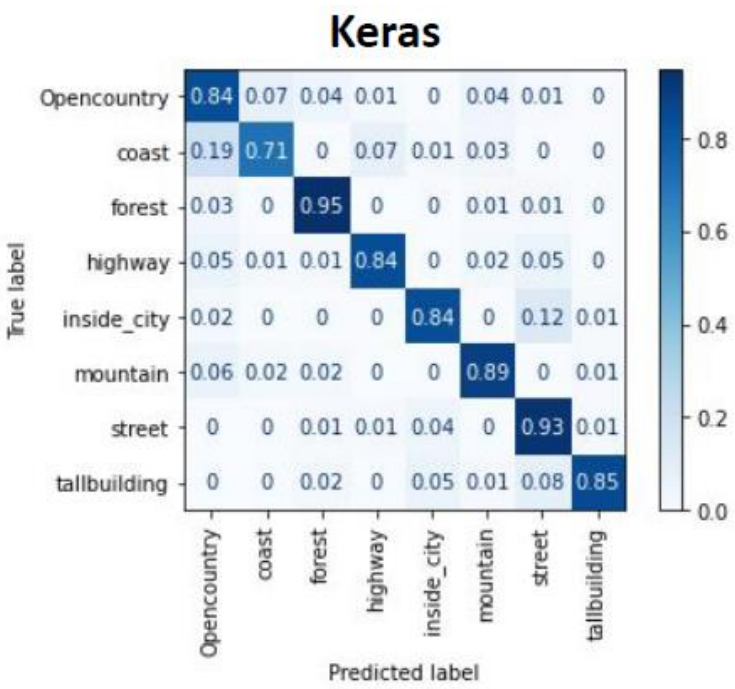
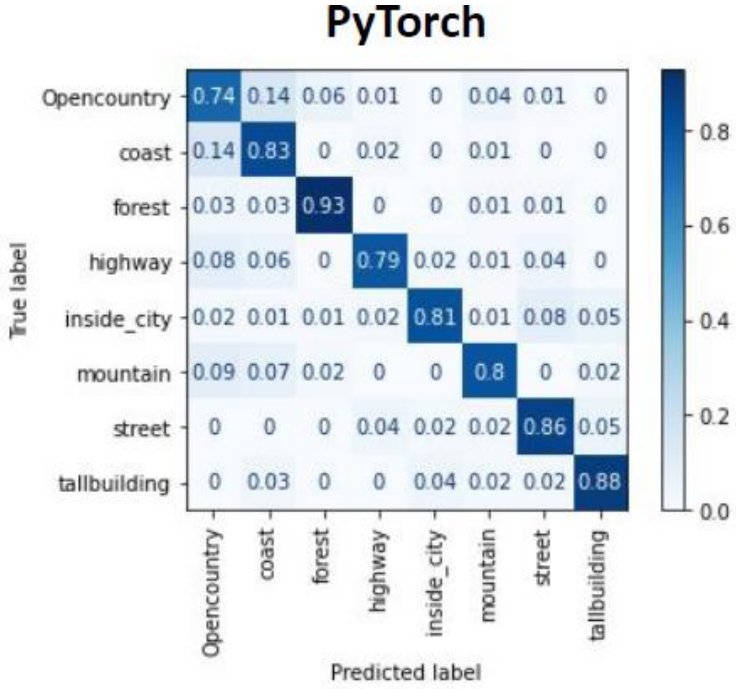
Try to figure out what is happening in your experiments:

- Does the model have a consistent behavior among different classes?

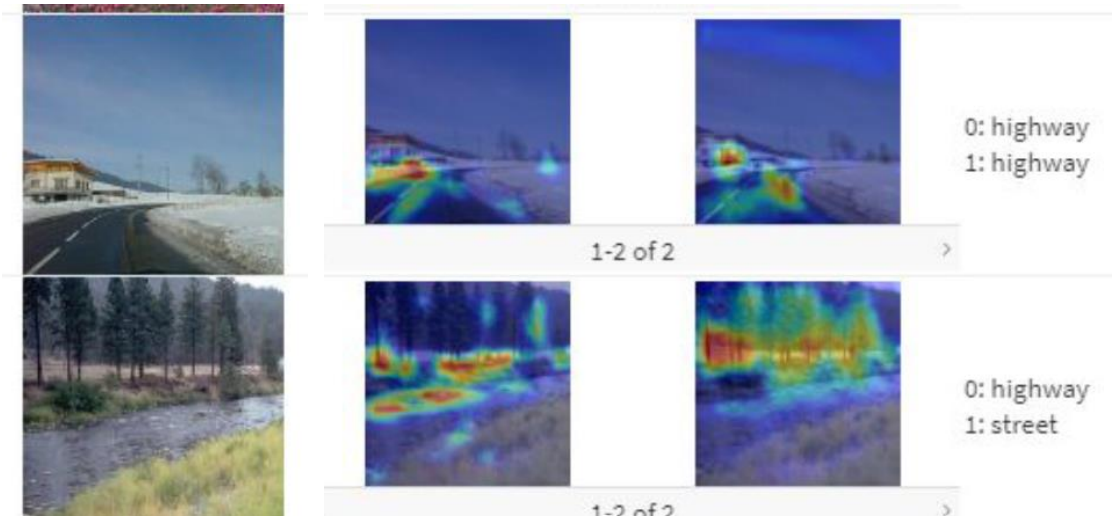


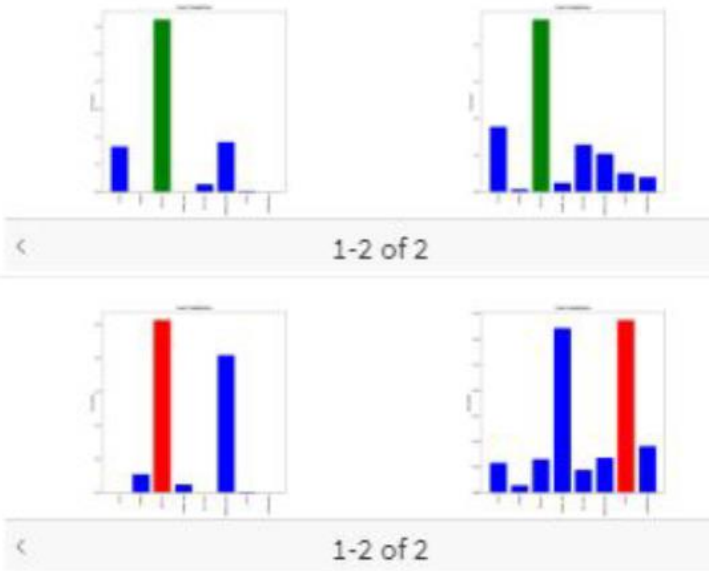


P1 Introduction to Pytorch

Try to figure out what is happening in your experiments:

- Where is the model focusing its attention?





P1 Introduction to Pytorch

P1 Project conclusion:

- Even though Keras and Pytorch are similar, there are subtle differences that when sum up might yield to different results.
- Keras provides a higher level of abstraction, which makes easier to work with, but Pytorch allows finer customization.