Trimble / Bilberry : AI Engineer technical exercise

Part 1 : Technical Exercice

Context

At Trimble/Bilberry, a big part of our new problems can be tackled with Computer Vision. As a majority of Computer Vision problems rely on image datasets (for supervised machine-learning algorithms) we would like you to handle a dataset of field and road images.

Task : Create a two class classifier : Field & Road

Your goal is to create a **two class classifier** : Field & Road using the available data. Note that we will evaluate your model on another dataset. You can use any Deep Learning framework but note that we have a slight preference for **PyTorch or Tensorflow**. Feel free to be creative in the technique you use, we will value it, but we want you to **justify your choices** : model architecture, training loss, hyper parameters…

Deliverables

- A git with all your code, including comments to explain the different steps : model building, model training, validation tests…
- A brief write-up (1-2 pages) summarizing the process and the results. Training and testing curves are more than welcome, some predictions on new data as well.
- Once done just send an email with all the necessary links at : loic_steunou@trimble.com with anastasiia_krestianska@trimble.com in copy.
- You have around a week (a bit more is not a problem) to carry the exercise when you receive it.

Evaluation criteria

- Model's performance as much as creativity.
- Choices in the different parameters.
- Code quality.

Data

- Data is available here. Feel free to play with these images. You are expected to use images in the test_images folder to test your trained model. Please include inferences of these images in your report.

Part 2 : Paper Review

At Trimble/Bilberry, we always keep an eye on state of the art publications to apply cutting edge solutions to improve our products. As an AI Engineer, we expect you to have this mindset. That is why we will ask you to summarize the last interesting paper/publication you read in the domain of Deep Learning for computer vision.

Deliverables

- Brief summary of the paper/publication : 1 or 2 pages max
- Tell us why this publication was interesting to you ?
- You can add the page(s) in the git repository with the code