CentraleSupélec

Introduction to Deep Learning Re-take Exam Project

Deadline 29/10/2023

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1 Description

Within the scope of this re-take exam you are asked to solve a binary classification problem using the appropriate methods that were presented within the curriculum of the DL course. For the purposes of this project you will use the Patch CAMELYON dataset (pcam) that has been extracted from the CAMELYON16 dataset [1] and that is arranged for this purpose.

You will have to retrieve the dataset[1], analyze and preprocess it accordingly. Furthermore, you will have to train a number of models for the binary classification of tiles and provide an analysis on the best approach supported with anything that you consider important (i.e., metrics, tables, figures).

2 Evaluation

The evaluation will be based on the following grid:

1. Data analysis (20%)

2. Organization of the experiments (20%)

3. Performance (20%)

4. Report Clarity (20%)

5. Originality (20%)

3 Deliverable

A single report together with the implemented code is the deliverable of this exam. You will have to submit a link to a jupyter notebook (e.g. google colab, github) with everything integrated.

Please send the deliverable in the following emails:

- Stergios Christodoulidis, stergios.christodoulidis@centralesupelec.fr

- Maria Vakalopoulou, maria.vakalopoulou@centralesupelec.fr

References

[1] Babak Ehteshami Bejnordi, Mitko Veta, Paul Johannes Van Diest, Bram Van Ginneken, Nico Karssemeijer, Geert Litjens, Jeroen AWM Van Der Laak, Meyke Hermsen, Quirine F Manson, Maschenka Balkenhol, et al. Diagnostic assessment of deep learning algorithms for detection of lymph node metastases in women with breast cancer. *Jama*, 318(22):2199–2210, 2017.

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[1](https://github.com/basveeling/pcam/tree/master)