Practical block III: Grand Challenge

Practicum and System Requirements

Please note that the session will be performed in python using Keras with TensorFlow Backend. Both Tensorflow 1.x or 2.x versions can be used (TF 2.x is recommended). Code using other programming languages will not be evaluated. The use of Google Colab is allowed.

A basic guide for installing Keras 2.3.1 and Anaconda can be found in a separate document in the campus virtual.

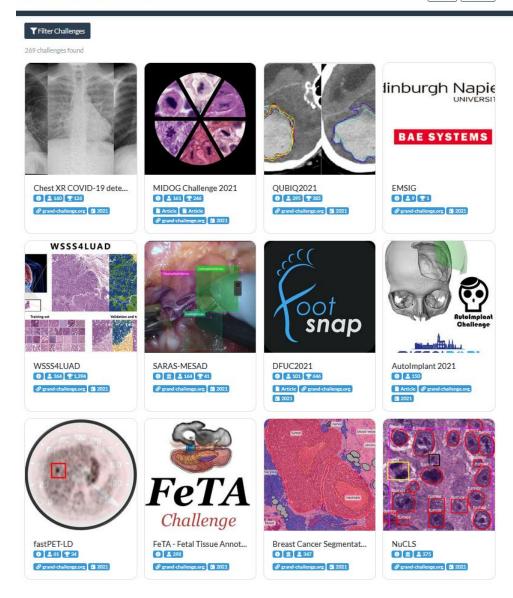
Practical session will be performed individually. Please code using python jupyter, in order to facilitate the results comparison.

1. Introduction

Challenges in medical image analysis became popular after the organization of the Grand Challenges for Medical Image Analysis at the MICCAI conference in 2007. Hosting challenge events quickly became commonplace it conferences such as MICCAI, ISBI, and SPIE Medical Imaging, amongst others, have hosted challenge events. Leading journals such as IEEE Transactions on Medical Imaging and Medical Image Analysis have welcomed overview papers that described the results of individual challenges.

Since 2010 Grand Challenge webpage bring all information on challenges in the domain of biomedical image analysis available at one place.

https://grand-challenge.org/challenges/



2. Aim of the practical session

In this practical session the students are required to choose a challenge.

The first task consists in analyzing in depth the state of the art (SOTA) of the challenge, usually summarized in a paper reporting the results. The research performed by the student was already presented by the students during the presentation activity of the course).

The student should choose one of the method of the SOTA and is required to implement one of the technique proposed by a challenge participant. The choice of the method should be done in such way to be feasible in the few weeks of the third practical session.

Suggestions: to speed up the computations the student might want to reduce the resolution of the images

it is not expected to obtain the same results of the challenge participant, but to illustrate the attept to replicate the same network.

Of course the simple use of the open-source code of a challenge participant is not allowed, and the student is supposed to implement the technique starting from general purpose algorithm implementation (for instance those available at keras.io)

3. Deliverable

Submit a **SHORT** report, commenting your results using markdown of python. No need to include the original dataset images.

IMPORTANT, only files delivered using the campus virtual will be evaluated. Please upload in the corresponding task your file before the dead line IN CASE YOU HAVE NO ACCCESS TO THE CAMPUS VIRTUAL please contact the professor of the practical course to solve the issue.