Introduction to Project 2

SML Exercise 9

Overview

Project 2 is an image segmentation task

- Input: an RGB image
- Output: a binary mask of the same dimensions as the original image
- Each pixel belonging to an ETH mug is assigned 1, while the others are assigned 0

- We use Kaggle to evaluate your model's performance on the test set.
- You are required to submit a 2-page report via OpenReview

Implementation

We use PyTorch to implement the model.

Get yourself familiar with the workflow of PyTorch:
`https://pytorch.org/tutorials/beginner/basics/intro.html`

Report

In your report, please

1. clearly describe your proposed approach
2. report and analyze experimental results (e.g., experimental setup, hyper-parameter selection, performance, good/bad cases)
3. The main body is at most 2 pages (excluding references)
4. You can also add content in the appendix (see the template for the format). However, reviewers are not required to check every detail of the appendix, so try to fit your results on two pages.

Report

The report template can be accessed here:
`https://www.overleaf.com/read/bnjhwknzggdj#ff64b7`
Click “Menu” in the upper left corner and download Source

Your report should be submitted via OpenReview:
`https://openreview.net/group?id=ETHz.ch/2025/Course/SML`

Each group submits only one report. Only the group member who submits the report needs to register for an OpenReview account (**using ETH email**).

ISG Cluster Basics

The ISG of D-INFK provides GPU support for Project 2:

- Each of you receives 50 hours of Jupyter and 50 hours of Slurm jobs.
- The dataset is already in your home directory
- We have also provided an environment containing PyTorch and CUDA: `/cluster/courses/sml/jupyter`
- The disk space is limited, so please check and delete unnecessary files regularly
- Plan early. Cluster will be busy close to deadline.

Please read the instructions carefully before you start:
`https://www.isg.inf.ethz.ch/HelpClusterComputingStudentCluster`

ISG Cluster Basics

Jupyter notebooks:

1. Login using ETH credentials: `https://student-jupyter.inf.ethz.ch/`
2. Course tag: `sml`
3. Select the prebuilt environment: `/cluster/courses/sml/jupyter/bin` (you can also DIY your environment if you really need: `https://www.isg.inf.ethz.ch/Main/HelpClusterComputingStudentClusterJupyter`)
4. Each session lasts at most 60 minutes

ISG Cluster Basics

Slurm jobs:

1. `ssh username@student-cluster.inf.ethz.ch`
2. Activate the prebuilt environment:
   `. /cluster/courses/sml/jupyter/bin/activate`
3. Submit your job using `srun` or `sbatch` (course tag: `sml_jobs`)
4. A simple example:
   `sbatch -A sml_jobs -t 2:0:0 --wrap="python train.py"`