Group B Progress Report 1

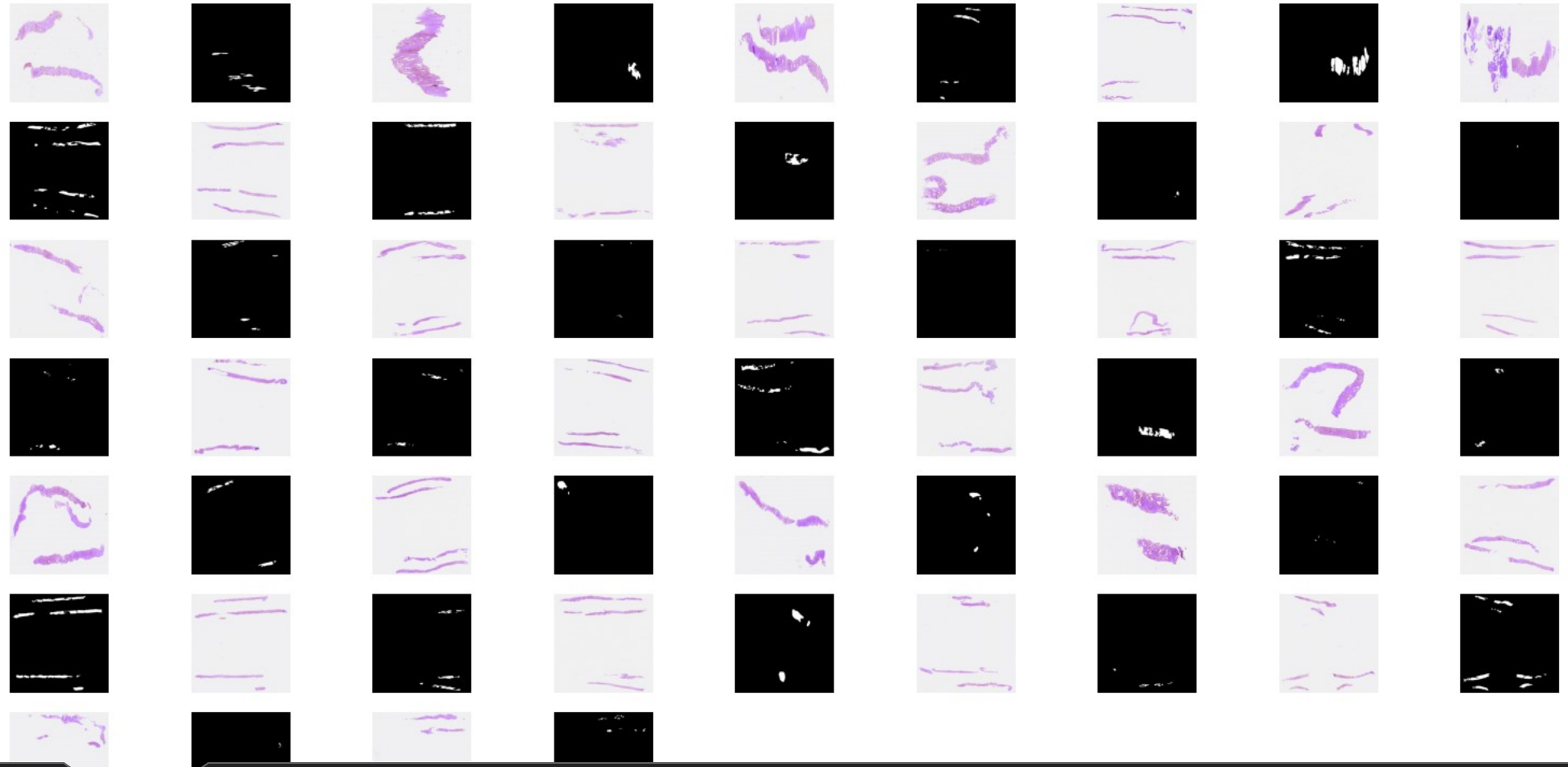
Content

- AGGC 2022 Data Analysis
- UWMGI Competition
- Future plan after the end of AGGC & UWMGI
- Discussion

AGGC Competition

- Given the massive dataset size, It is unlikely that we can finish it immediately.
- The major issue lies in the part of data loader in which we could not directly load the original data without data compression of extraction.
- While we do have a full dataset now on the workstation in the lab and we can transfer the files via SFTP efficiently among devices, still it is relatively harder to deal with such an enormous task locally.
- With the graphic cards provided by AIURC, it should be easier.
  - But the fact is, the AIURC platform is not well supported given the restriction on network connection. It was a nightmare when dealing with packages and dependencies.
- Therefore, for now, we have decided to switch to other competitions for our first attempt.

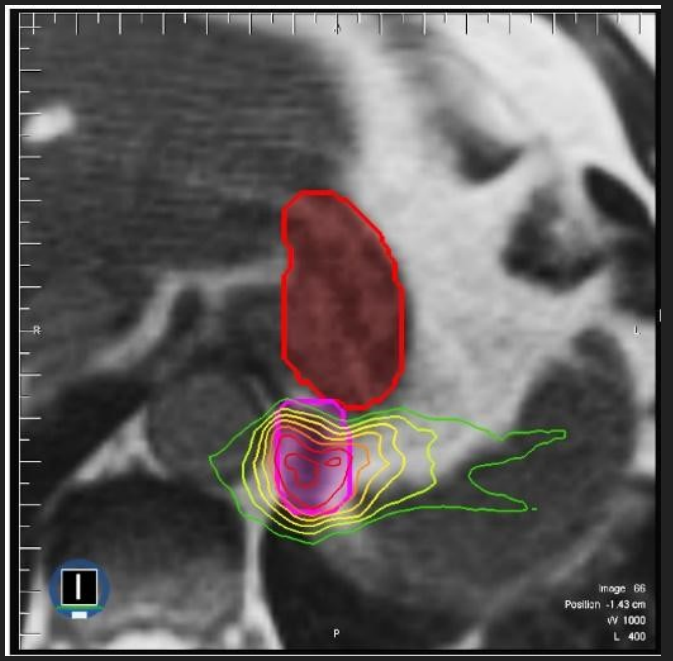
文件名	文件大小	文件类型	最近修改	权限
..				
Subset3_Train_anno...		文件夹	2022/7/1 19:...	drwxr-xr-x
Subset2_Train_image		文件夹	2022/7/1 19:...	drwxr-xr-x
Subset2_Train_anno...		文件夹	2022/7/1 19:...	drwxr-xr-x
Subset1_Train_image		文件夹	2022/7/1 19:...	drwxr-xr-x
Subset1_Train_anno...		文件夹	2022/7/1 12:...	drwxr-xr-x



Biopsy samples

UW-Madison GI Tract Image Segmentation

- The competition aims to track healthy organs in medical scans to improve cancer treatment.
  - In this competition, you'll create a model to automatically segment the stomach and intestines on MRI scans. The MRI scans are from actual cancer patients who had 1-5 MRI scans on separate days during their radiation treatment. You'll base your algorithm on a dataset of these scans to come up with creative deep learning solutions that will help cancer patients get better care.



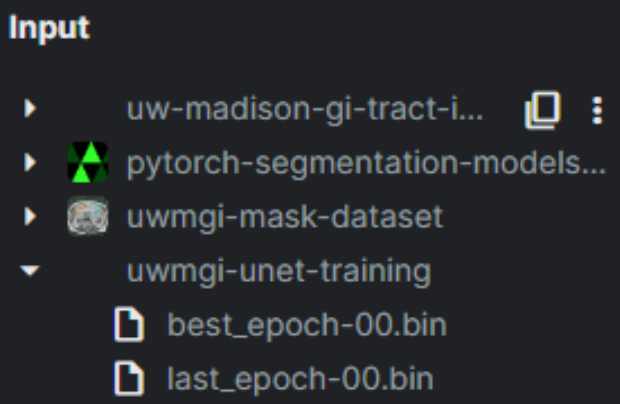
Launch
3 months ago

Close
7 days

43 minutes ago
Rules Acceptance Deadline

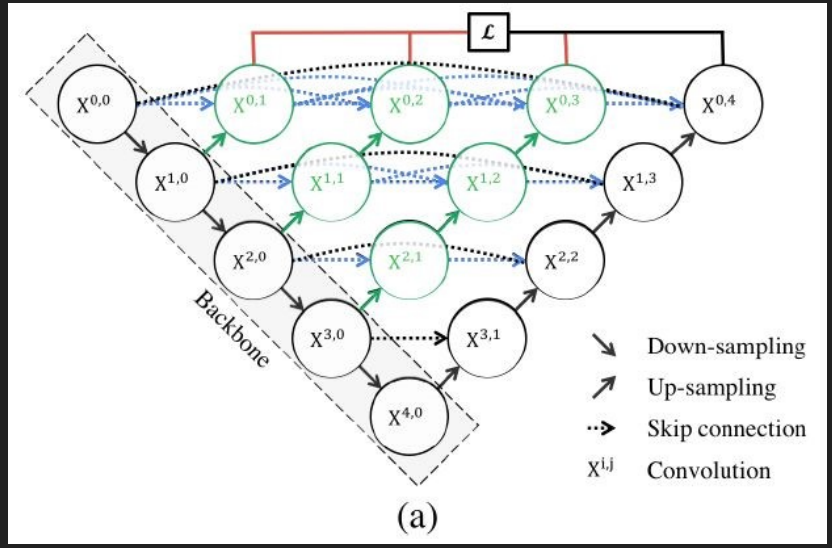
UWMGI Baseline analysis

- Competition page
- Inference baseline
- In this competition, a lot of baselines are provided by other participants for people to start from them. I picked one of them as a start point and then successfully improved the result via some adjustment on model structure, hyperparameter, etc.
- The baseline consists of 2 parts which are Inference notebook and Training notebook.
  - Inference notebook have to take the output of Training (the model) as an input to make prediction.



Model Structure

- Basically, the model is a variation of Unet++ and it is derived from the pytorch model library and taking efficientNet as a backbone.
- Also, in order to have the optimization correct, the tricks of transfer learning is utilized, which we load the initial weights from imagenet and then fine-tune our model on the given dataset for several epochs.



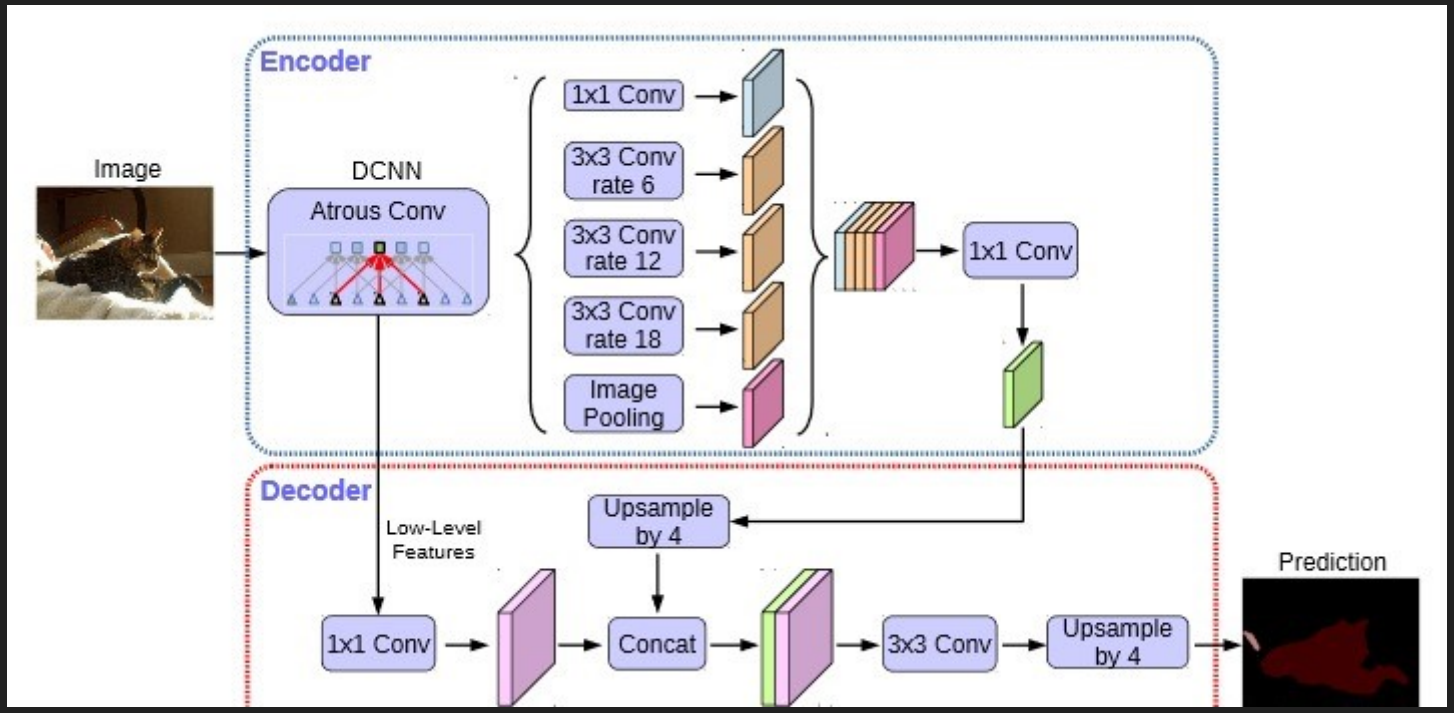
Submission Scores

- This competition is evaluated on the mean Dice coefficient and 3D Hausdorff distance.

Submission and Description	Status	Public Score	Use for Final Score
UWMGI: Unet++ [Inference] Version 10 (version 10/10) 19 minutes ago by Rathgrith Notebook UWMGI: Unet++ [Inference] | Version 10	Succeeded	0.842	☑
UWMGI: Unet++ [Inference] Version 9 (version 9/10) 18 hours ago by Rathgrith Notebook UWMGI: Unet++ [Inference] | Version 9	Succeeded	0.846	☑
UWMGI: Unet++ [Inference] Version 8 (version 8/10) 18 hours ago by Rathgrith Notebook UWMGI: Unet++ [Inference] | Version 8	Succeeded	0.846	☐
UWMGI: Unet++ [Inference] Version 7 (version 7/10) a day ago by Rathgrith Notebook UWMGI: Unet++ [Inference] | Version 7	Succeeded	0.838	☐

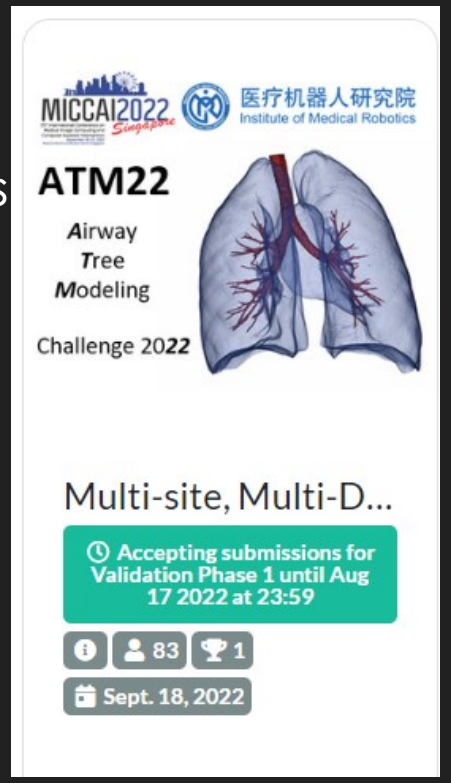
Next step on this contest

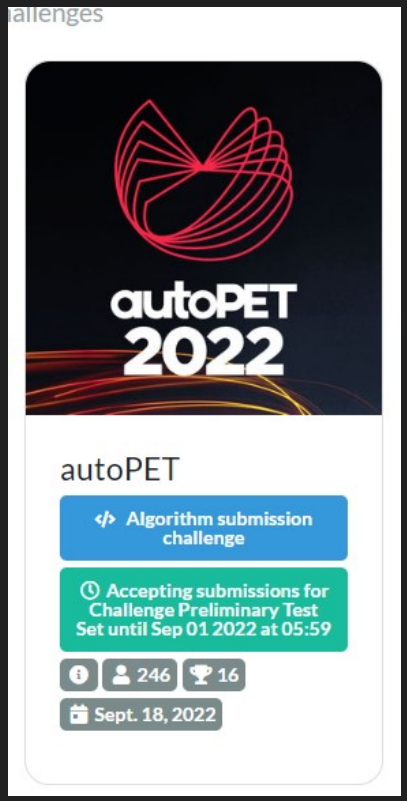
- I personally believe that a hopeful model for this competition would be the DeepLabV3+, therefore, I will try that model in the following days before the end of this contest.



Future plans

- Both competitions mentioned, AGGC and UWMGI, will end submission soon, after which, we may find other competitions to challenge. We have found some hopeful competitions.





Links for hopeful challenges

- https://www.kaggle.com/competitions/hubmap-organ-segmentation
- https://atm22.grand-challenge.org/
- https://autopet.grand-challenge.org/

Discussion