Sprint 3 : Cervical spine fracture detection

A1_10

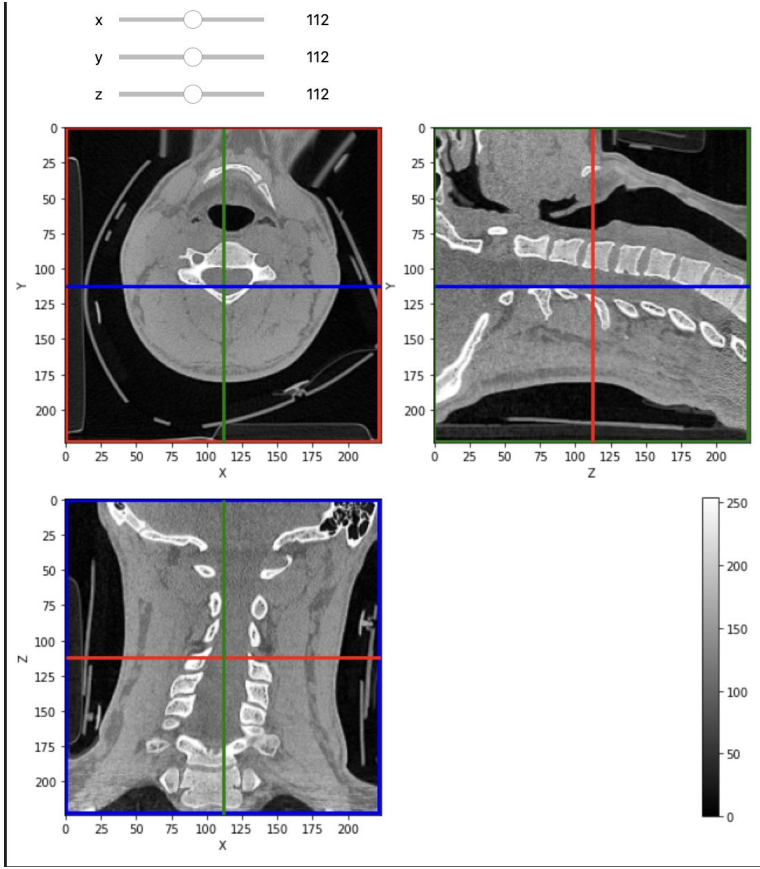
Preprocessing part

- How to show CT scans in ITK-SNAP? For a single CT scan ✅
  - Change window width and window level to better enhance the bones

- How to show CT scans in Python? For batching CT scans ✅
  - DICOM: Convert all dicoms images to 3D volume (.dcm --> .nzp) and interactively show some examples
  - Segmentation: Convert them to numpy format, clip the images within [-125, 175], normalize each 3D image to [0, 1], and extract 2D slices from 3D volume for training cases.

- Problem: ❓

1. How to unify coordinates of DICOM and segmentation files? Using matrix?


x
112
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Y
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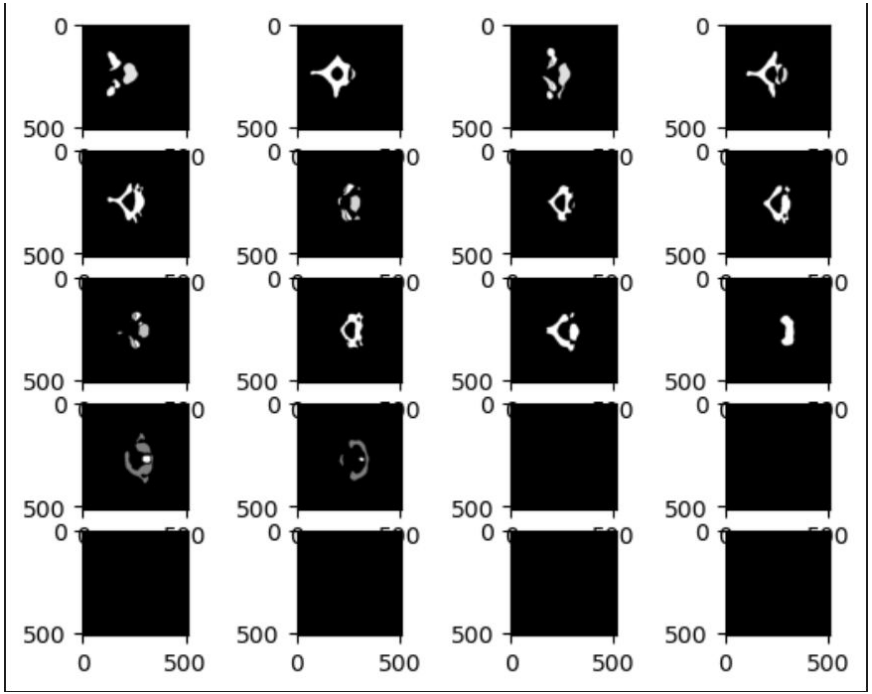
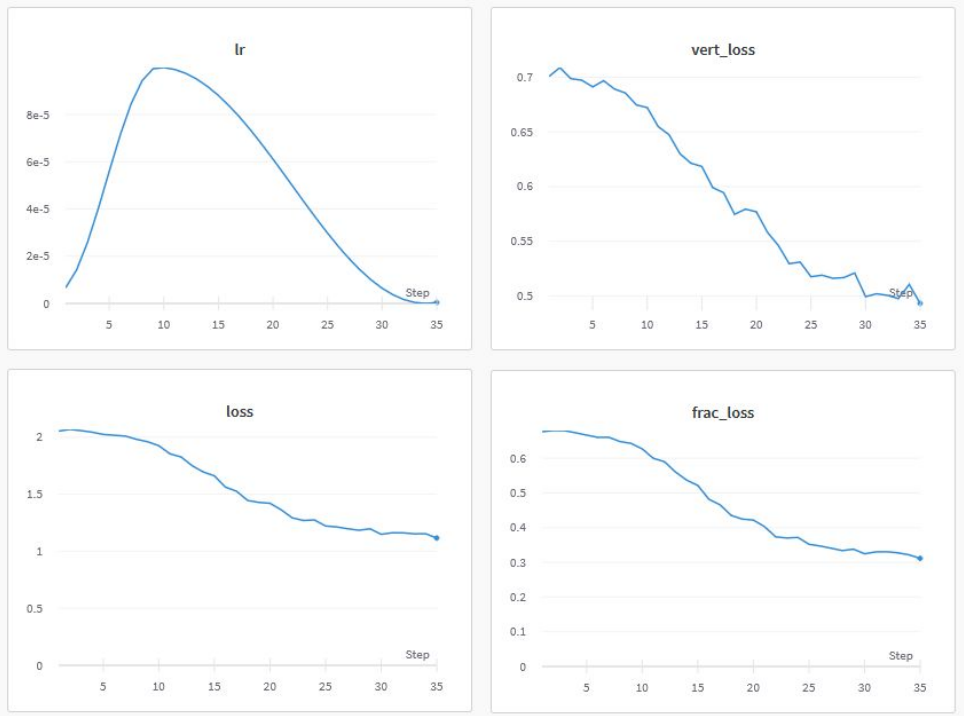


Model training

- Trained our model on SCC
- Used WanDB to sync and visualize the training progress
- Implemented a EffcientNetV2 model based on Kaggle open source code



Next sprint goal

- Design a UI based on PyQt5
- Try different models(UNet, DenseNet…)
- Evaluate the model performance on test dataset