

New Member/Progress Doc

[New Members start here]

Datasets:

- [AASCE](#) (New model dataset) - Challenge website; data is already in azure, but should be accessible through the website with a request to the organizers
 - **Has landmark and cobb angle truth data**
 - Aaron (GTRI employee who helped out in the past semesters) made a new version of the dataset that was “fixed” in that some abnormal images and labels were removed or fixed, so we trained models on both. This dataset was found to be a bit problematic, so we’ve primarily focused on just the original, unedited dataset. If the dataset is mentions “original” or “boostnet_label”, you’re looking in the right place.
- [Shriners](#) (Target dataset) - Images are all on Azure and should stay there
 - **Only has cobb angle truths**
 - [Users/echen89/Vertebra-Landmark-Detection-changed/xrays_pngs_full](#) for full set
 - [*NATHAN/NIKIL CROPPED FOLDER PATH HERE*]
- [Verse](#) (Old model dataset) - The dataset should all be on Azure assuming we get access again this semester; otherwise, this should be the source

Model Papers::

- [Vertebra-Focused Landmark Detection for Scoliosis Assessment](#) (aka VFL; New model paper)
- [Seg4Reg](#)
- [Automated Estimation...with Ensembles of Cascaded Neural Nets](#)
- [Accurate Automated Keypoint detection](#)
- [Christian Payer VerSe Paper](#) (Old model paper)

Repos:

- [Vertebra-Focused-Landmark-Detection-Pytorch](#) (new model modified repo) - See echen89 branch for expanded README
- [Christian Payer Model \(modified\)](#) - What we worked on over the summer; see echen branch -> MedicalDataAugmentationTool-Verse/MedicalDataAugmentationTool-VerSe/ and the modified README

EMADE

- Any additions to the EMADE eval functions/repo
- data packing (npz format) scripts
 - [apeng39/Vertebra-Landmark-Detection-changed/aasce_preprocessing.ipynb](#)
 - [apeng39/Vertebra-Landmark-Detection-changed/scoliosis_preprocessing.ipynb](#)

For new members, please get familiar with the AASCE dataset and model paper (VFL) as this is the model we spent the most time with. We are in the process of adding primitives to EMADE from other models, so once you feel comfortable with the VFL model, it wouldn't hurt to look at the other papers.

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We will also need to get all of you set up on Azure which will take most of your first week, but here is a rough description of the organization once you're in. Most of the team's personal folders are copied off of mine, so there might be some slight variations in each member's folder if you go looking somewhere else, but in general: here is the file architecture, paying attention to the most useful/often run scripts.

Azure File System Organization

```
../Vertebrae-Landmark-Detection-Changed
  /array_pickles
    /AASCE_original-original
      /labels.mat
  /original_datapath/boostnet_labeldata
  /pretrained_model
  /weights_local_original_50epochs_spinal
  /xrays_pngs_full
    /overlays
  /eval.py
  /get_cobb_angle.py
  /shriners_overlay_angles.csv
  /train.py
  /vis_predictions.sh
```

WARNING: Most of the files reference paths from the personal directory of whoever was working on the code, so if you plan on running anything, double check that the file paths are correct so you aren't pulling data (or worse), saving and overriding data from places you don't mean to.