



Project Status 10 July 2019

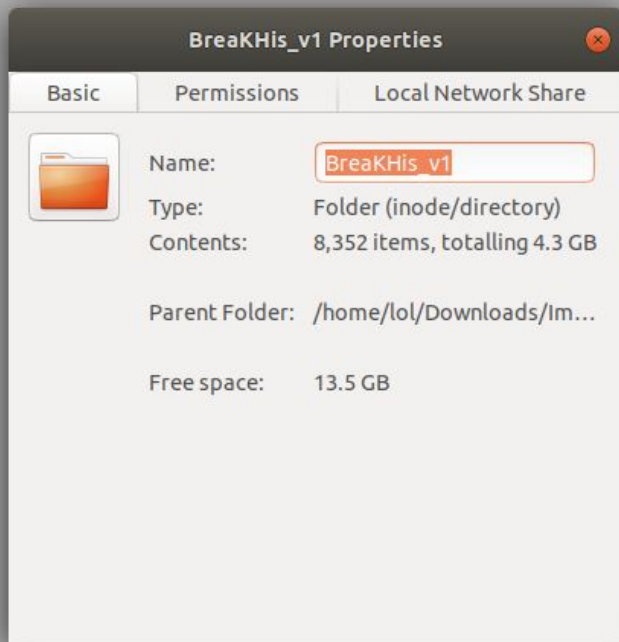
Laurence Liss



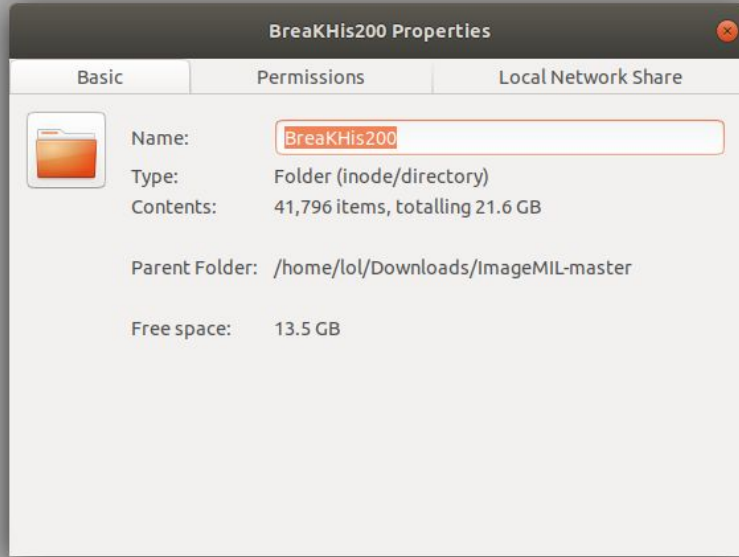
Completed Items

- Applied for both datasets used in the paper.
- Received access to one dataset (called BreaKHis)
- Successfully ran preprocessing scripts on the data set.
- Ran the training portion of the program on the data set.
- Ran classification portion of the program on the data set.

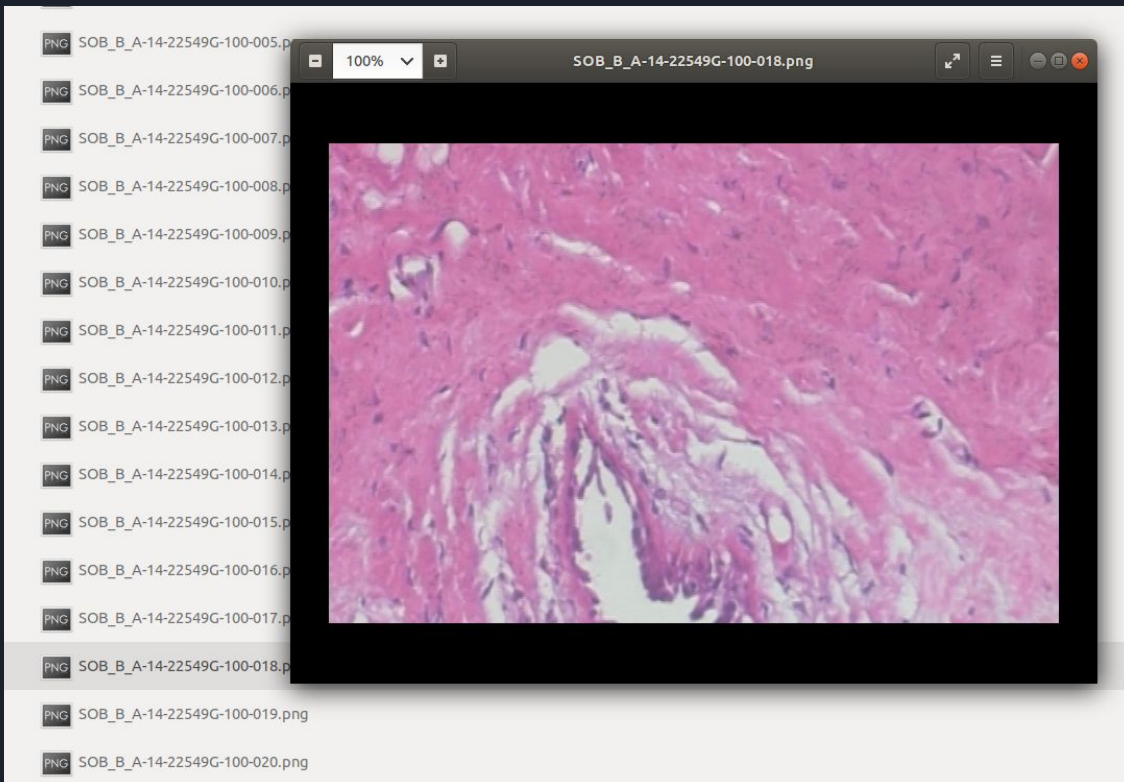
BreaKHis Dataset




Prepared BreakeHis Dataset Created by running mkfold.py

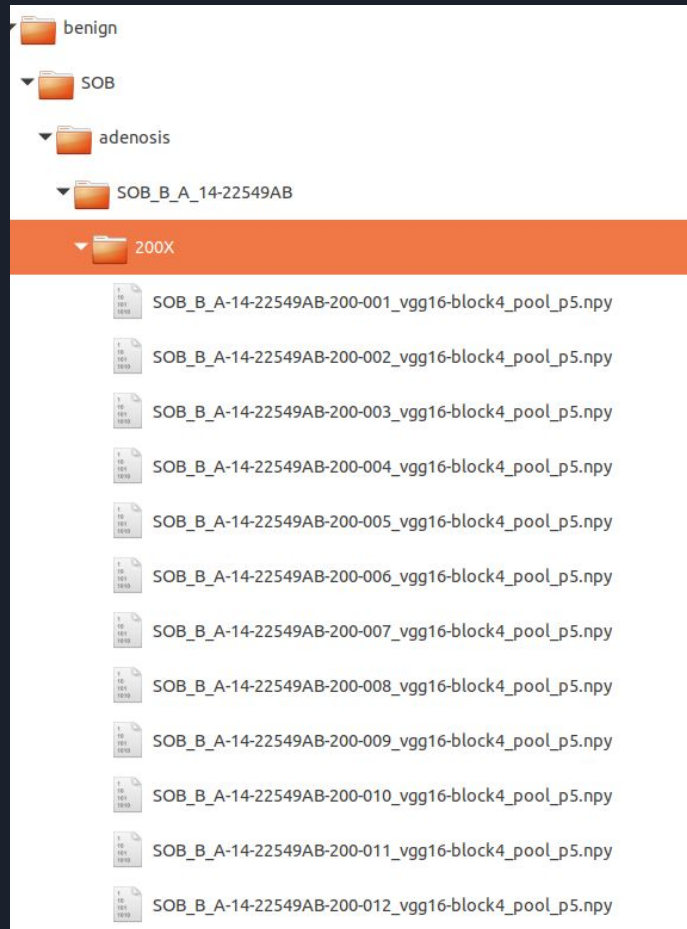


BreaKHis Dataset Images





Output from run_cnn_features.py



Output from run_mi_classify.py

```
SOB_B_TA-14-13200-009 1
SOB_B_TA-14-13200-007 1
SOB_B_TA-14-13200-017 1
SOB_B_TA-14-13200-021 1
SOB_B_TA-14-13200-019 1
SOB_B_TA-14-13200-011 1
SOB_B_TA-14-13200-016 1
SOB_B_TA-14-13200-020 1
SOB_B_TA-14-13200-001 1
SOB_B_TA-14-13200-013 1
SOB_B_TA-14-13200-004 1
SOB_B_TA-14-13200-012 1
SOB_B_TA-14-13200-014 1
SOB_B_TA-14-13200-018 1
SOB_B_TA-14-13200-008 1
SOB_B_TA-14-13200-015 1
SOB_B_TA-14-13200-010 1
SOB_B_TA-14-13200-006 1
SOB_B_TA-14-13200-005 1
SOB_B_TA-14-13200-003 1
SOB_B_TA-14-15275-005 1
SOB_B_TA-14-15275-012 1
SOB_B_TA-14-15275-009 1
SOB_B_TA-14-15275-006 1
SOB_B_TA-14-15275-008 1
SOB_B_TA-14-15275-004 1
SOB_B_TA-14-15275-003 1
SOB_B_TA-14-15275-002 1
SOB_B_TA-14-15275-010 1
SOB_B_TA-14-15275-001 1
SOB_B_TA-14-15275-011 1
SOB_B_TA-14-15275-007 1
SOB_B_TA-14-16184CD-018 1
SOB_B_TA-14-16184CD-015 1
SOB_B_TA-14-16184CD-004 1
SOB_B_TA-14-16184CD-019 1
SOB_B_TA-14-16184CD-003 1
```

```
[[147 21]
 [ 54 375]]
tumor_type
Fold 1/1
/home/lo/Downloads/ImageMIL-master/lib/python3.6/site-packages/sklearn/model_selection/_search.
rsion 0.22 and will be removed in 0.24. This will change numeric results when test-set sizes are
DeprecationWarning)

accuracy 0.450586 auc 0.805804
[[ 20  7  5  0  0  0  1 15]
 [  1 172  0 13  1 50  0  0]
 [  4  0  9  0  0  0 11 31]
 [  1 41  0 26  5  0  0  0]
 [ 20 46  2  1 15  0  0  0]
 [  1  2  2  0  9  0 17  4]
 [  0  0  1  0  2  1  2  8]
 [  0 20  5  0  0  1  0 25]]

Cross-validation results
run_mi_classify.py:30: RuntimeWarning: invalid value encountered in double_scalars
  ste = std/np.sqrt(len(self.res[metric])-1)
acc 0.450586 0.000000 nan
auc 0.805804 0.000000 nan
kappa 0.281362 0.000000 nan
confusion
A DC F LC MC PC PT TA
[[ 20  7  5  0  0  0  1 15]
 [  1 172  0 13  1 50  0  0]
 [  4  0  9  0  0  0 11 31]
 [  1 41  0 26  5  0  0  0]
 [ 20 46  2  1 15  0  0  0]
 [  1  2  2  0  9  0 17  4]
 [  0  0  1  0  2  1  2  8]
 [  0 20  5  0  0  1  0 25]]

benign_type
Fold 1/1
/home/lo/Downloads/ImageMIL-master/lib/python3.6/site-packages/sklearn/model_selection/_search.
rsion 0.22 and will be removed in 0.24. This will change numeric results when test-set sizes are
DeprecationWarning)
```



Next Steps

- Complete running classification program.
- Evaluate output.
- Prepare new dataset.
- Test programs with the new dataset.