Trained scaler

Labelling and Random Sampling

Train\_test\_split

Labelled train image samples

Organized image files

Labelled test image samples

Feature generation

Train image features

Train feature normalization

Feature generation

Test image features

Test feature normalization

Normalized train features

Kfold cross validation

Normalized test features

Test data classify

Classifier training

Scores

Classify results esults:scores

Trained classifier

Sampling.PY

*Test Sampling\_result.h5*

*Train Sampling\_result.h5*

Image\_feature\_generation.PY

*Train\_features.h5*

*Traned\_scaler.h5*

Train\_RF.PY

*Traned\_classifier.h5*

Test\_RF.PY

Cross\_validation\_test.PY

Demo program flowsheet:

Input trained scaler and classifier

Start

Yes

No

More image?

Stop

Image classify

Image features

Input image

Feature generation

Feature normalization

Normalized feature

Show result