**Running Test and Train in the instance**

(Please use this page only after completing the setup of the Instance as per the Launch and Setup guide.)

This page is a guide to train and test of KPConv Model described as the following architecture:

'simple',

'resnetb',

'resnetb\_strided',

'resnetb',

'resnetb\_strided',

'resnetb\_deformable',

'resnetb\_deformable\_strided',

'resnetb\_deformable',

'resnetb\_deformable\_strided',

'resnetb\_deformable',

'nearest\_upsample',

'unary',

'nearest\_upsample',

'unary',

'nearest\_upsample',

'unary',

'nearest\_upsample',

'unary'

**1. Training the Model**

Training the model takes around 32 GB RAM and required 16 GB Graphics for the Dales dataset (This requirement is dataset dependent). Following are the steps:  
(If the dataset has difference in the classes compared to DALES, change it in the **dataset/DALES.py** at line **#97**)

1. Connect to the ssh terminal.
2. Utilize tmux to create a new session using the following command  
   tmux attach
3. Run the following commands:

cd {Location of the KPConv}/

conda activate aerotronic

python -u training\_DALES.py > filename.txt

filename.txt will contain the output log of the training.

1. Detach from the tmux session using the following
   * Press Ctrl-A and then press D or (if this does not work)
   * Press Ctrl-B and then press D
2. Now the session is running and the current ssh session can be safely closed.

**2. Testing the trained model**

Testing the model takes around 16 GB RAM and required 16 GB Graphics for the Dales dataset (This requirement is dataset dependent). Following are the steps:

1. Edit the ***test\_any\_model.py*** file at ***line #235*** as per the training log of your choice  
   chosen\_log = 'Log\_YYYY-MM-DD\_HH-MM-SS'  
   This sets the testing script to look for the trained model in 'results/Log\_YYYY-MM-DD\_HH-MM-SS'
2. Connect to the ssh terminal.
3. Utilise tmux to create a new session using the following command  
   tmux attach
4. Run the following commands:

cd {Location of the KPConv}/

conda activate aerotronic

python -u test\_any\_model.py > output\_filename.txt

output\_filename.txt will contain the output log of the training.

1. Detach from the tmux session using the following
   * Press Ctrl-A and then press D or (if this doesn't work)
   * Press Ctrl-B and then press D
2. The session is running. The current ssh session can be safely closed.

**3. Expected running times for test and train.**

Training is expected to take 3 Days. It can be stopped at any time by using the

**Ctrl-C** break.

Testing is expected to take a maximum of 1 hour. (The default number of votes is 100, this may lead to longer test time> 2Hr) To reduce the running time you can edit ***'test\_any\_model.py'*** at ***line #197*** to  
tester.test\_cloud\_segmentation(model, dataset, num\_votes=1)

**4. Model Artifacts and Results**

Training model artifacts are stored in ***results/Log\_YYYY-MM-DD\_HH-MM-SS***

Testing results are stored at ***test/Log\_YYYY-MM-DD\_HH-MM-SS/predictions***

To check the accuracy of the testing ***test\_accuracy.py***can be utilized. Edit line #19 to the model predicted files which are by default in ***test/Log\_YYYY-MM-DD\_HH-MM-SS/predictions.***

***test\_accuracy.py*** compares the files from the prediction files to ground truth files which are stored in ***Data/test\_bin/***