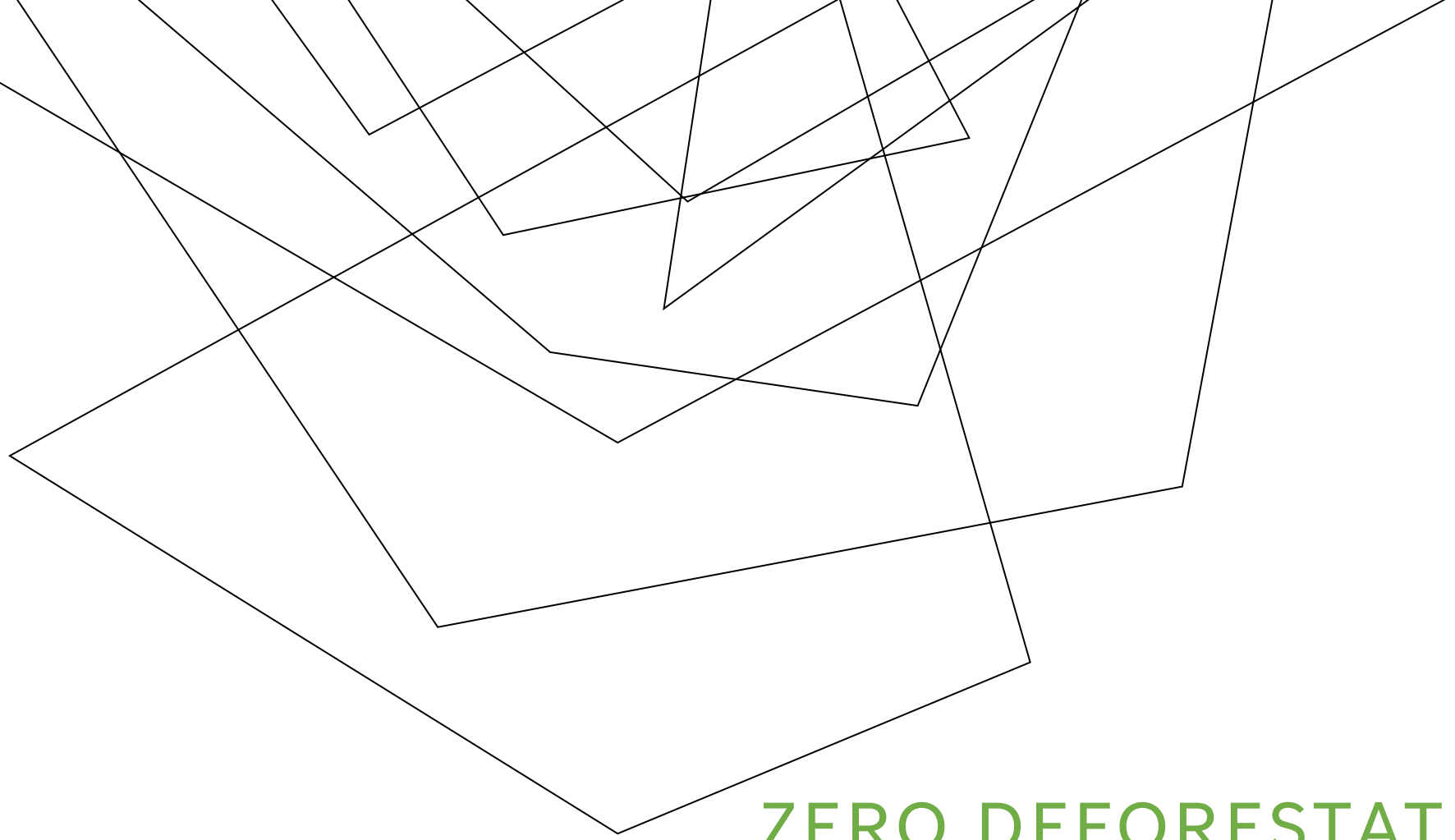


ZERO DEFORESTATION MISSION DATA SCIENCE

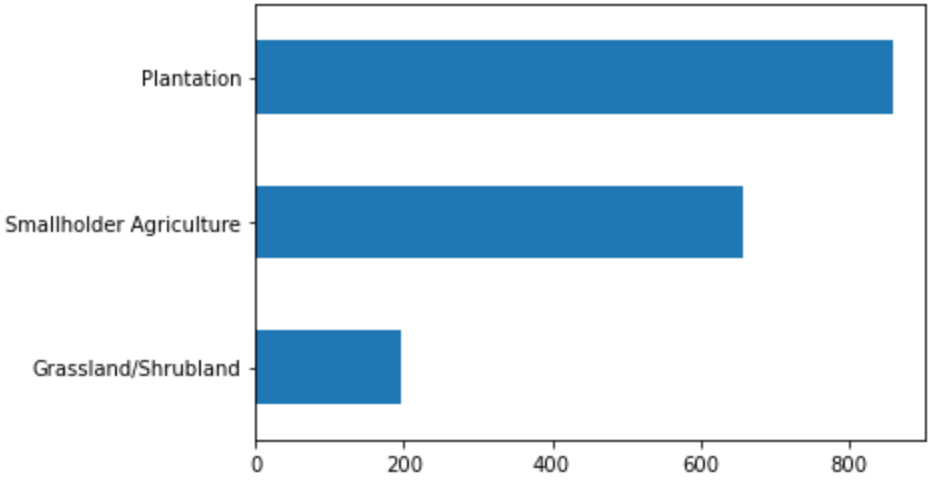
Pol Gràcia Espelt

Gerard Jover Pujol

Team JARPOL

EXPLORATORY DATA ANALYSIS - IMAGES

Class frequency

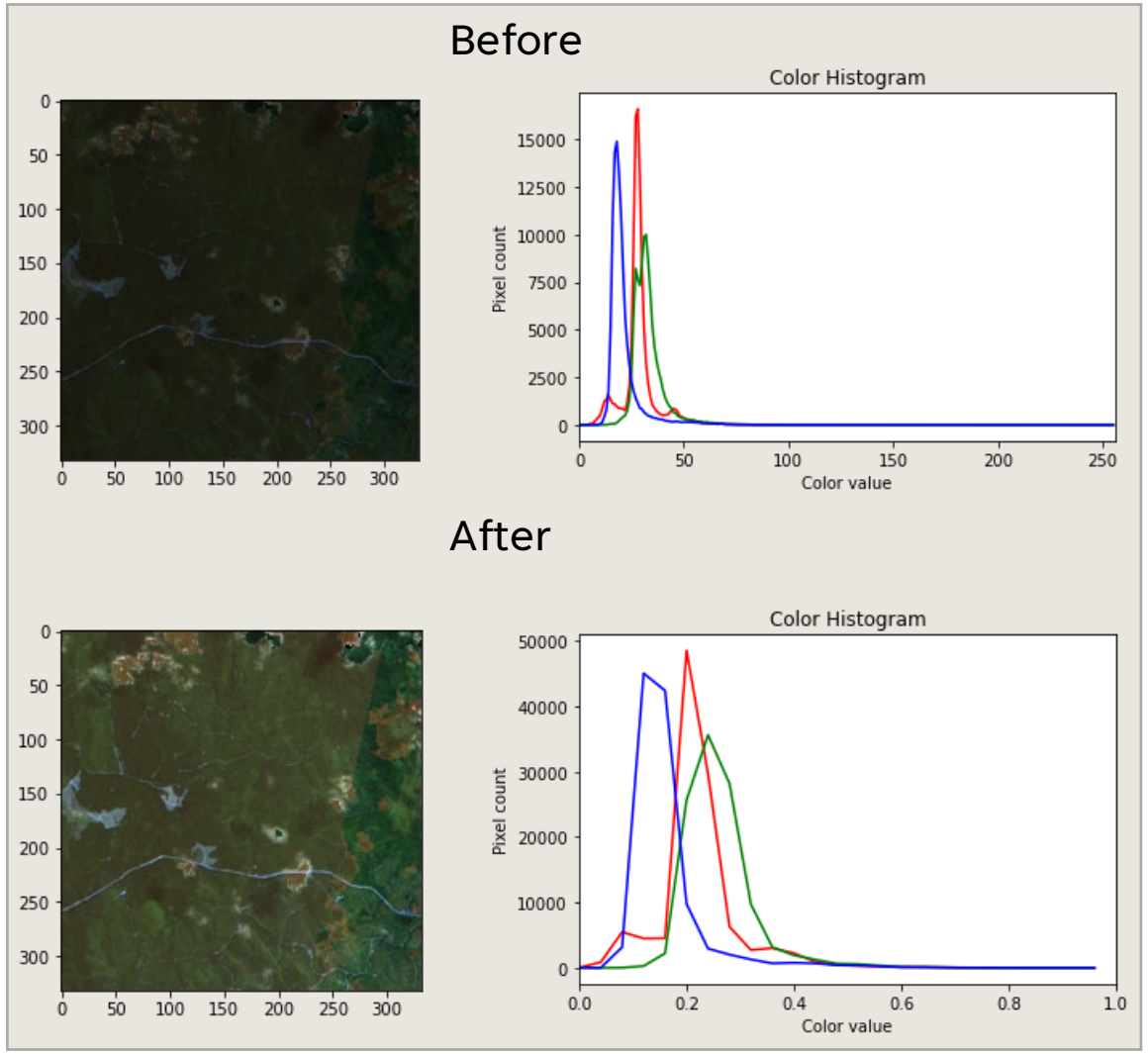


Class image mean and std comparision

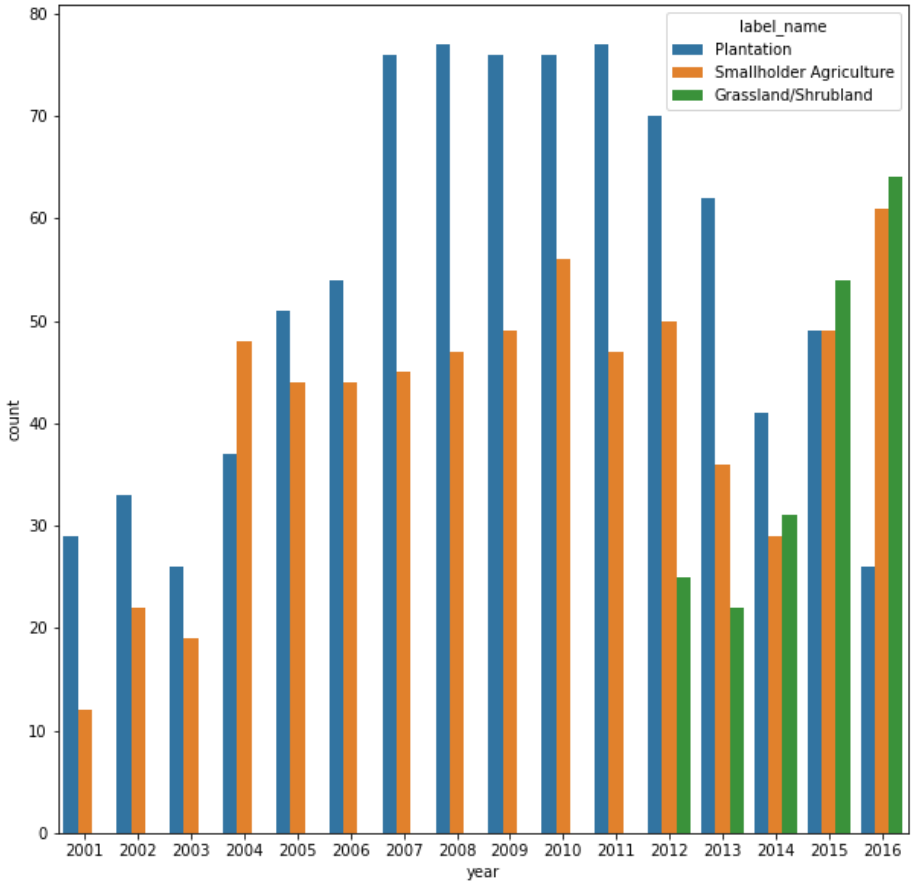
labels	Red mean	Green mean	Blue mean	Red std	Green std	Blue std
Plantation	15.725172	30.531295	23.042379	10.541464	11.677333	13.764905
Grassland/Shrubland	14.914524	30.421357	21.785901	10.571276	11.428999	12.921195
Smallholder Agriculture	14.472235	29.680570	20.616667	10.056842	10.836724	11.338517

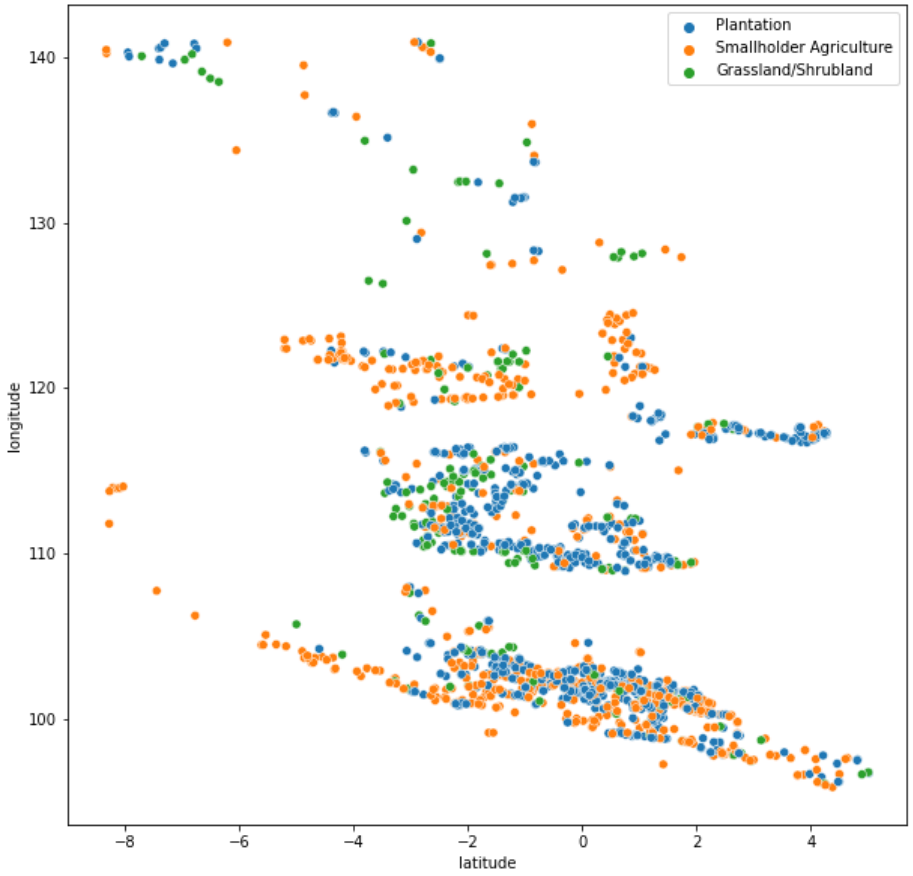
Not trivial relationships found, similar means and std in diferent classes

Image normalization – minMax scaler



EXPLORATORY DATA ANALYSIS – YEAR, LAT, LONG

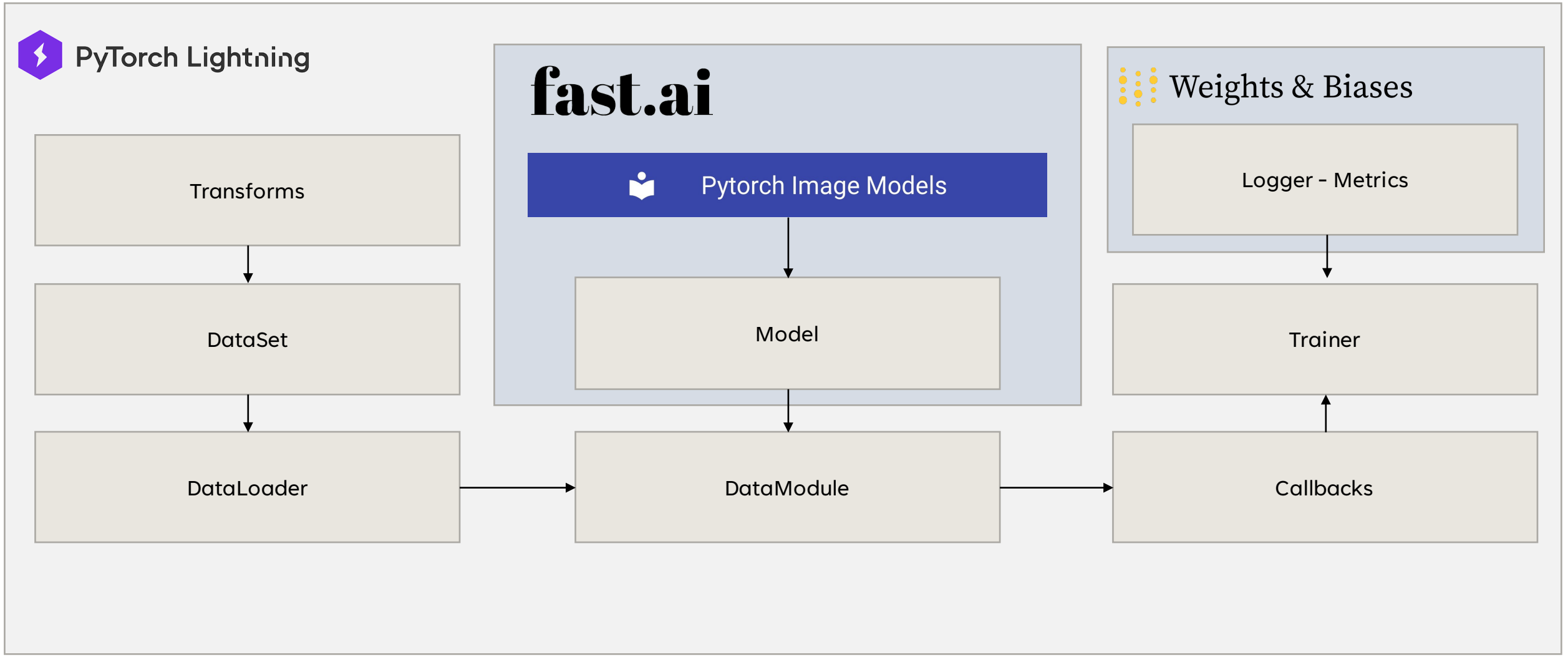




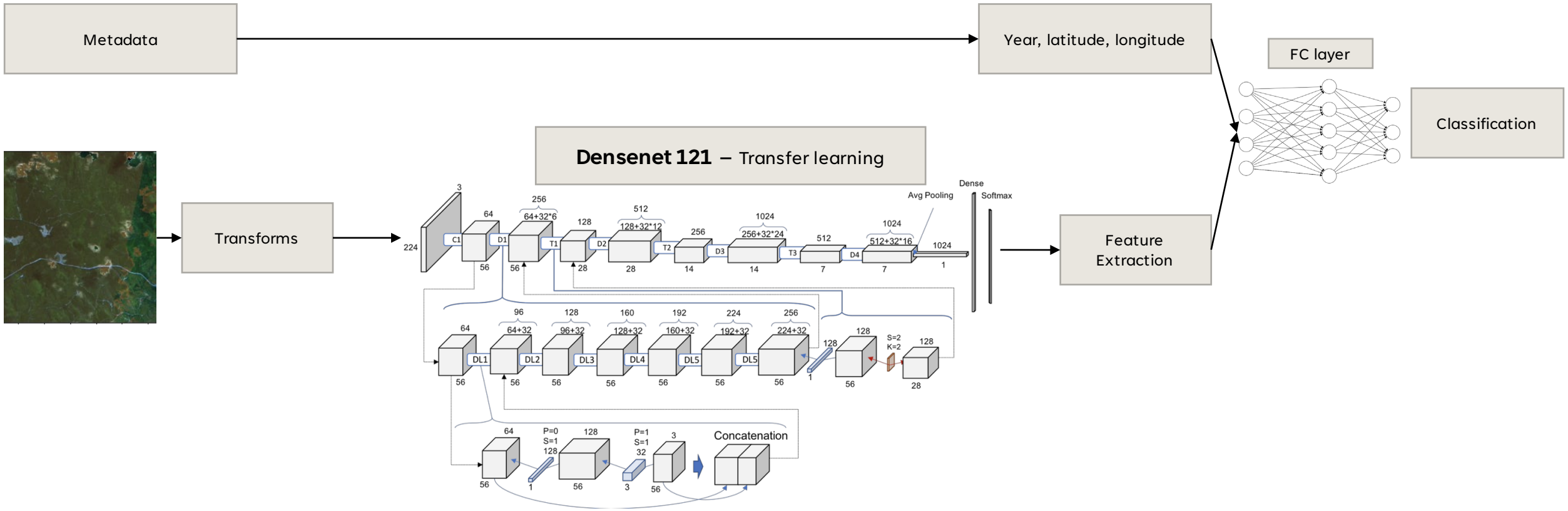
Class Grassland first appearence in 2012

Not trivial class clustering by latitude and longitude attributes

FRAMEWORK

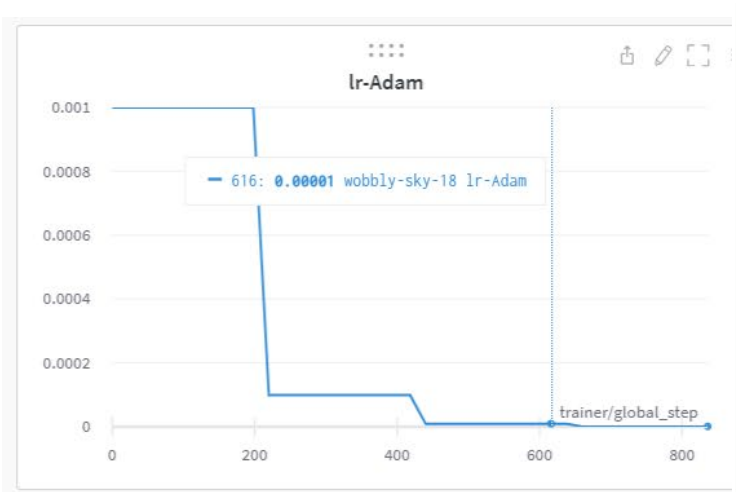

PyTorch Lightning
Transforms
DataSet
DataLoader
fast.ai
Pytorch Image Models
Model
DataModule
Weights & Biases
Logger - Metrics
Trainer
Callbacks

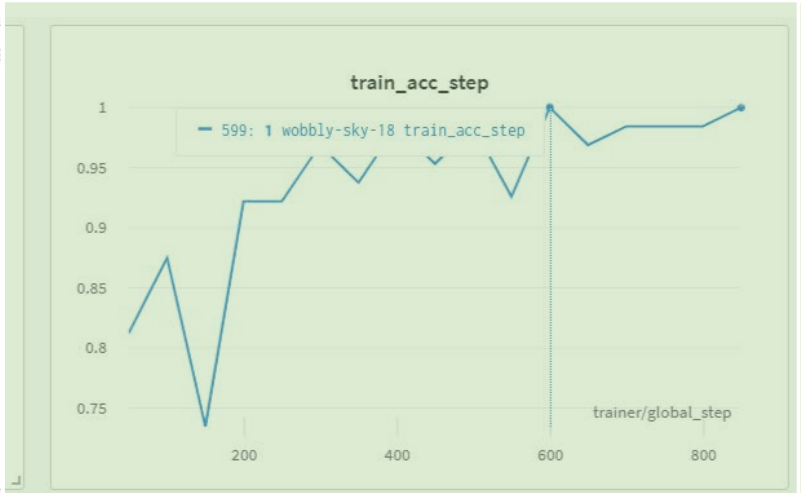
APPROACH - ARCHITECTURE

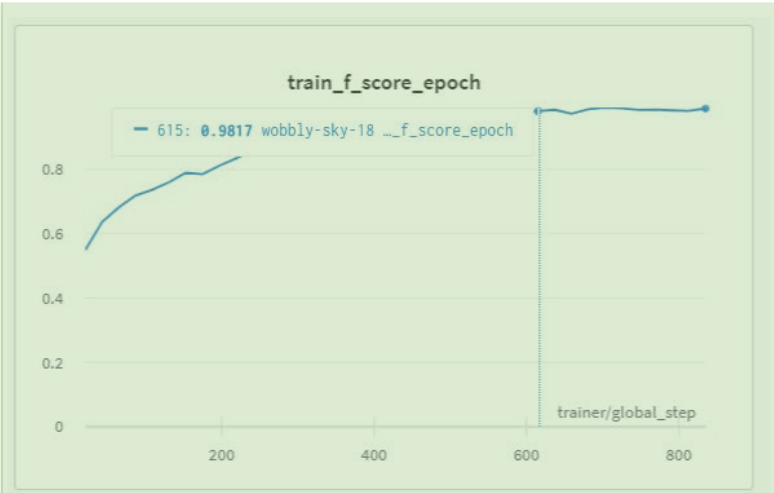


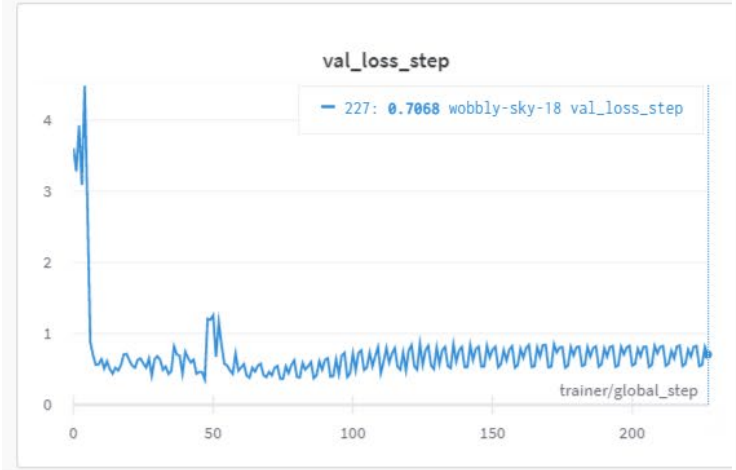
More detailed results report:
https://wandb.ai/pgraciae/hackaton-deforest/reports/Zero-Deforestation-Challenge--VmlldzozMDAxNDg3?accessToken=ka6gup027c93xmmu3yucsxdjp3t2pnzhu97ew2mwms9root0tygoxa4g2twujnnf

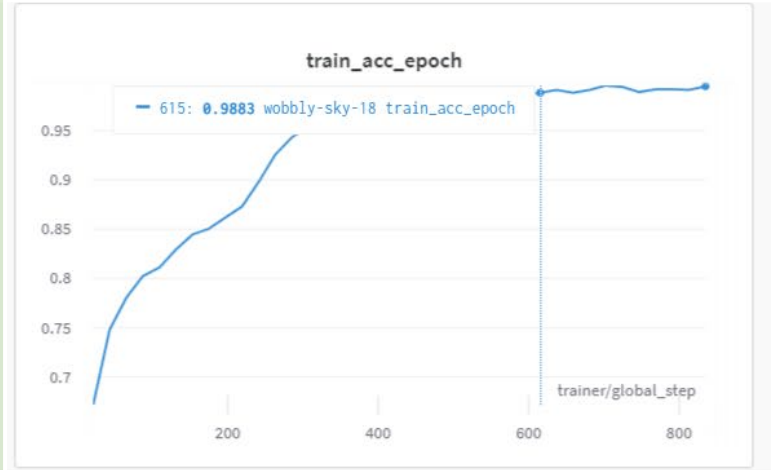
RESULTS



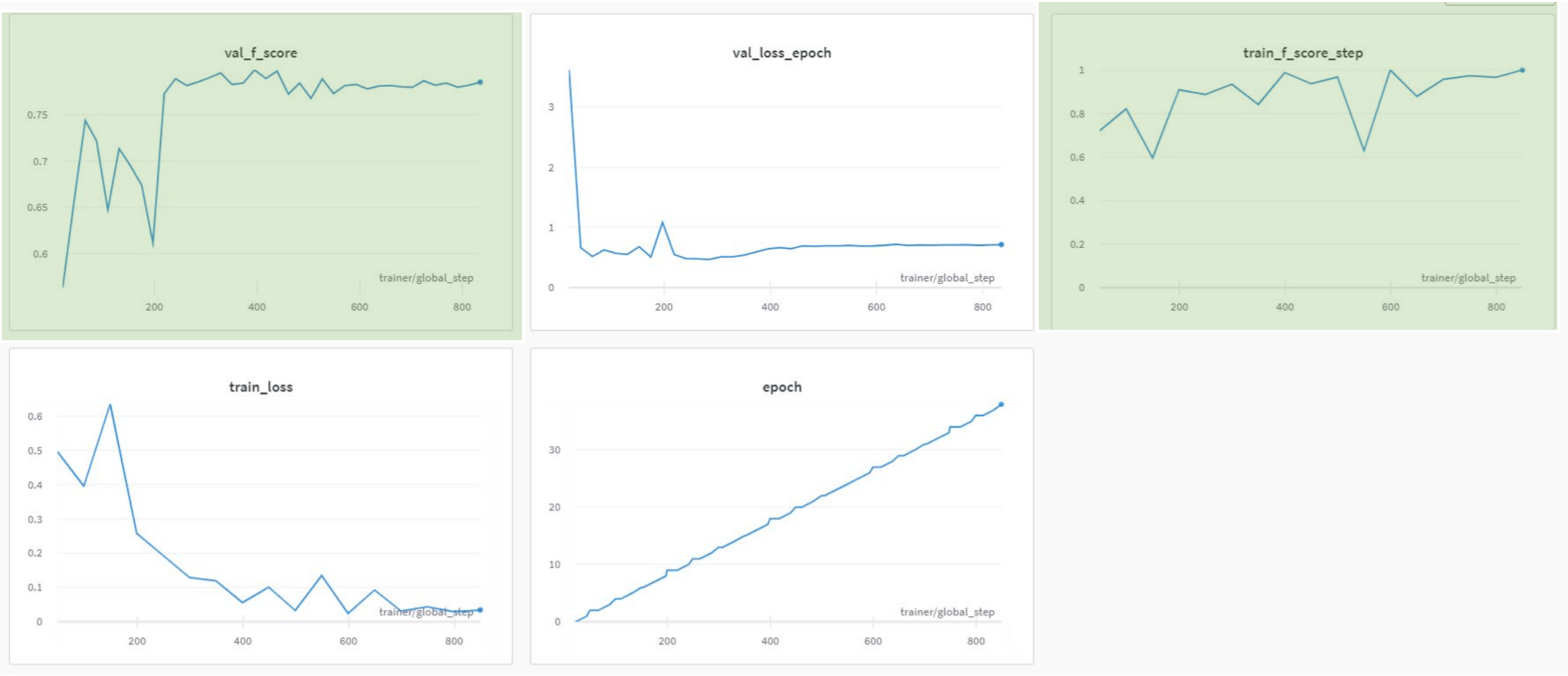








RESULTS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0.7
0.65
0.6
200
400
600
800
trainer/global_step
val_loss_epoch
3
2
1
0
200
400
600
800
trainer/global_step
train_f_score_step
1
0.8
0.6
0.4
0.2
0
200
400
600
800
trainer/global_step
train_loss
0.6
0.5
0.4
0.3
0.2
0.1
0
200
400
600
800
trainer/global_step
epoch
30
20
10
0
200
400
600
800
trainer/global_step