Kaggle bird classification (default)

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Problem Description

- image classification for 555 bird species

Previous Work

- Pretrained model: efficientnetv2
- Tutorial 4: Transfer Learning to Birds (from website)
  - predict function and get_bird_data function
- Pytorch
- Split-folders library

Approach

- Apply transfer learning with a pretrained model
- Summary:
  - Split-folders to create a stratified split for training and valid set
    - random_split from pytorch may under / over-present certain classes
  - Transfer learning with efficientnetv2-s pretrained model
  - Regularisation techniques: dropout, weight decay
  - More data augmentations, avoid overfitting

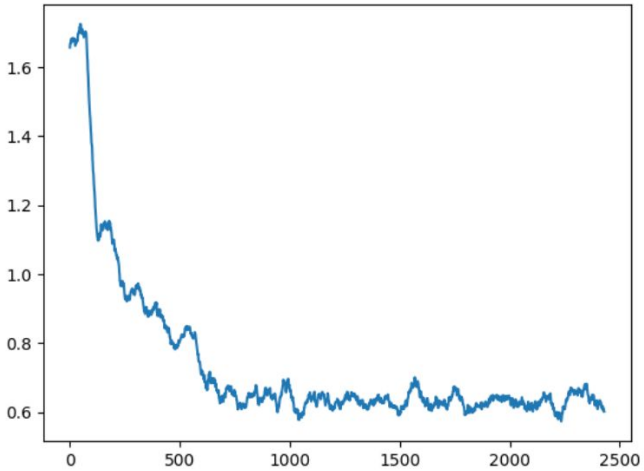
Datasets

- Modified dataset using split-folders
  - tried tensorflow on new notebook, failed, but kept the dataset

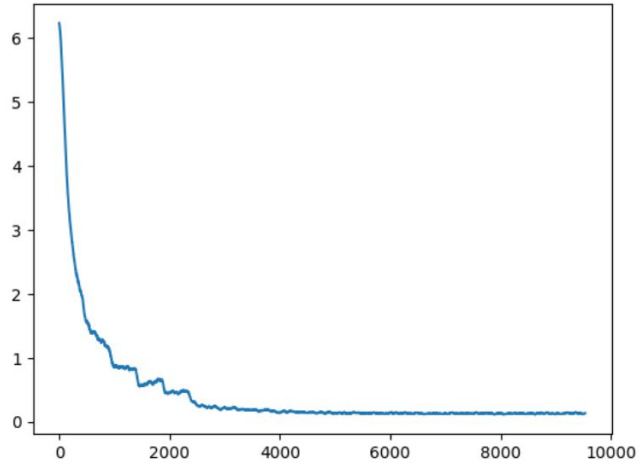
```
# split training folder for training / validation sets
if not os.path.exists('/kaggle/working/birds'):
    os.makedirs('/kaggle/working/birds')
splitfolders.ratio('/kaggle/input/birds23sp/birds/train/',
                   output='/kaggle/working/birds',
                   seed=1337,
                   ratio=(.8,.2))
```

Results

Val loss



Train loss



Birds23Spr - Version 23

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0.85

Problems

- Training time: 3-7 hours on GPU
- runtime error, due to not properly resizing for valid set

```
RuntimeError: Trying to resize storage that is not resizable
```

Next steps

- adjust parameters some more, fine-tune model
- multiple changes per run (due to long time it takes to train model), difficult exact effects of each change