

Short description

The script is used to train the different action classifiers (binary and total, single frame and multiple frame).

Requirements

- packages: tensorflow, imgaug, efficientnet, keras
- Training and validation sets as created by “prepare_data_ac.py”.

Step 1 – open spyder:

- Terminal:
 - conda activate bovids
 - spyder

Step 2 – adjust parameters:

- GPU_TO_USE : choose GPU that will be used, if only one GPU is available, set it to zero. [string]
- NUM_GPUS = 1: Is hard coded to 1, to create a parallel model, a user needs to adjust the code itself. [integer]
- BS_PER_GPU = 8: Batch size for training (= number of images loaded on parallel into the network), depends on your GPU. [integer]
- NUM_EPOCHS: Number of training epochs. We suggest training for at least 60 epochs, but this might change depending on your dataset. [integer]
- SAVE_EVERY_EPOCH: Every n-th epoch the current weights are stored. [integer]
- HEIGHT, WIDTH: Need to be set to 300 for EfficientNet-B3 (size of input images). [integer]
- BEHAVIOR_LIST = ['standing', 'lying', 'sleeping']: list of action classes. Label themselves are not important but the i-th entry of the list corresponds to label i in the training set. [list of strings]
- DATA_PATH: Path (folder) of the training set, contains subfolders 0,1,2 (or, respectively, 0,1). Was created by „prepare_data_ac.py“. [string]
- VAL_PATH = Path (folder) of the validation set, contains subfolders 0,1,2 (or, respectively, 0,1). Was created by „prepare_data_ac.py“. [string]

- `MODEL_WEIGHTS` = 'imagenet', if transfer learning on imagenet weights. Otherwise, input the path of a previously trained network with the same architecture (number classes, ends on .h5). [string]
- `MODEL_SAVE_PATH_BASE` = Destination (folder) in which the model will be stored. [string]
- `CHECKPOINT_SAVE_PATH` = Destination (folder) in which automatically saved weights after all `SAVE_EVERY_EPOCH` epochs will be stored into. [string]
- `MODEL_NAME` = Filename of the final model file.[string]

Step 3 – run the script

- Processing will start immediately.