Assignment 2. Improving ML-model performance via experimenting with spectrograms and noise

Submission deadline: Monday, 27 February 2023, 23:59

Submission format: archive with several files:

- .ipynb file with data preprocessing and data augmentation,
- all outputs of *model.save()* function,
- .ipynb training file with saved outputs;

Grading criteria:

- data preprocessing and data augmentation code is functional: +4 points,
- training code is functional: +3 points,
- code structure and usability: +3 points,
- additional points for 10 best scores (test set is not available, I will keep it on my side);

Task

In this assignment you will have to train CNN models to solve binary classification problems. Your input data is spectrograms generated from audio files. Main purpose of the assignment is to extend your dataset using noise generators, filtering and other techniques you find useful.

Attached files:

- *train.ipynb* – file with CNN and data loader you have to use,
- *training* – directory with training data (example how to structure your own dataset),
- *validation* – directory with validation data (example how to structure your own dataset)
- *barbie_vs_puppy* – directory with original audio you have to work with;

Constraints:

- Your are not allowed to change any Neural Network parameters or training parameters (except for INPUT SHAPE, EPOCHS, BATCH_SIZE, steps_per_epoch and validation_steps),
- Your are not allowed to use any additional training data or pre-trained models;