

Short description

Given the single predictions of BOVIDS per night stored in FINAL_STORAGE_PREDICTION_FILES of a specific individual, this script can be used to merge the data and report basic statistical key values (like the average number of phases per activity) and a timeline. It is fairly similar to “get_individual_overview” but with the major difference that this script merges the predictions of various individuals of one species. I.e., mean and median are always with respect to the different individuals.

Requirements

- packages: numpy, openpyxl, scipy, pandas, matplotlib
- Prediction of BOVIDS.
- An “individual info csv” file.

Individual info:

While merging the data, the script allows to add certain columns of information (like an anonymized individual code or the kind of stabling) in order to make data analysis with standard statistic tools like R more accessible. Therefore, one needs to create an individual_info.csv-file first, an example can be found in *examples/*.

The individual info file has the columns Cod_long, Cod_short, Cod_ssn, species, age, sex, zoo, stabling, stable with the following meaning.

Cod_long: individual code

Cod_short: a probably used shorter (unique) version of the individual code

Cod_ssn: individual code in scientific notation, i.e. this might be used to anonymize data

species, age, sex, zoo: self-explaining

stabling: how many individuals are in the corresponding enclosure?

stable: are there different species in the same (larger) area that might affect the nightly behavior?

Cod_long and Cod_ssn are necessary for the script to work, the other parameters are variable and can be adjusted just by creating a different csv-file providing the user a high degree of freedom.

Step 1 – open spyder

- Terminal / shell:
 - conda activate bovids
 - spyder

Step 2 – adjust parameters

- INPUT_FOLDER_KI_AUSWERTUNG = Output of BOVIDS' prediction, path (folder) to FINAL_STORAGE_PREDICTION_FILES [string]
- LIST_OF_INDIVIDUALS = List of all individuals that shall be conducted (list entries are individual codes). Will create one joined document and one graphic. All individuals must belong to the same species. [list]
- SPECIES = Name of species (consistent with the individual codes) [string]
- DO_TOTAL: True if total classification should be merged. [boolean]
- DO_BINARY: True if binary classification should be merged. [boolean]
- OUTPUT_XLSX_TOTAL = Path (ends with .xlsx) to the output document containing the overview about the total classification task. [string]
- OUTPUT_XLSX_BINARY = Path (ends with .xlsx) to the output document containing the overview about the binary classification task. [string]
- TIMELINE_OUTPUT_FOLDER = Destination (folder) in which the timeline will be stored. Timeline file itself will be created. [string]
- TIMELINE_TITLE = Title of the graphic. Might be empty. [string]
- CSV_INDIVIDUAL = Path to the individual info csv file. [string]
- BEHAVIOR_NAMES = Dictionary such that the keys correspond to the behavior code (0, 1, 2, 3) given by the action classifiers in the total classification task. Corresponding values are the names (e.g. Standing, LHU, LHD, Out). [dictionary]
- BEHAVIOR_NAMES_BINARY = Dictionary such that the keys correspond to the behavior code (0, 1, 3) given by the action classifiers in the binary classification task. Corresponding values are the names (e.g. Standing, Lying Out). [dictionary]

- `COLORS_TO_DRAW` = Dictionary such that the keys correspond to the behavior code (0, 1, 2, 3) given by the action classifiers in the total classification task. Corresponding values signify the color used in the graphic. [dictionary]
- `COLORS_TO_DRAW_BINARY` = Dictionary such that the keys correspond to the behavior code (0, 1, 3) given by the action classifiers in the binary classification task. Corresponding values signify the color used in the graphic. [dictionary]
- `COLORS_TO_DRAW_NORM` = Dictionary such that the keys correspond to the behavior code (0, 1, 2, 3) given by the action classifiers in the total classification task. Here, the activity budget is normalized onto Standing, LHU, LHD (ignoring Out). Corresponding values signify the color used in the graphic. [dictionary]
- `COLORS_TO_DRAW_BINARY_NORM` = Dictionary such that the keys correspond to the behavior code (0, 1, 3) given by the action classifiers in the binary classification task. Here, the activity budget is normalized onto Standing, Lying (ignoring Out). Corresponding values signify the color used in the graphic. [dictionary]

Step 3 – run the script:

- **`get_species_overview()`** for creating the overview file and the graphic.
- If a graphic should be drawn from an existing overview file use **`draw_only_timelines(path_to_xlsx, mode = 'total', normalised = False)`** and adjust variables.