Package: ovml.common (via r-universe)

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Title Support Utilities for Volleyball Machine Learning

Version 0.0.5

Description Support functions for other openvolley machine learning packages in volleyball analytics.

Depends R (>= 3.3.0)

Imports assertthat, curl, digest, ggplot2, grid, jpeg, magick, rappdirs

Suggests testthat

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`bbox_iou` *The IOU of two bounding boxes*

Description

The IOU of two bounding boxes

Usage

```
bbox_iou(box1, box2)
```

Arguments

`box1`	numeric: 4-element box vector
`box2`	matrix: nx4 matrix of boxes

Value

A vector of length n with the intersection over union (IOU) value for each box pair

`check_sha1` *Check file SHA1 hash against expected*

Description

Check file SHA1 hash against expected

Usage

```
check_sha1(filename, expected = NULL)
```

Arguments

`filename`	string: file to check
`expected`	string: expected SHA1 hash

Value

`TRUE` if the SHA1 hash matches the expected value, or if no expected value was provided.

`ovml.common` **ovml.common**

Description

Support functions for other openvolley machine learning packages in volleyball analytics.

`ovml_cache_dir` *Path to the cache directory used for model weight files and other data*

Description

Path to the cache directory used for model weight files and other data

Usage

```
ovml_cache_dir()
```

Value

The path as a string

`ovml_class_labels` *Class labels*

Description

Class labels

Usage

```
ovml_class_labels(dataset = "coco")
```

Arguments

`dataset` string: which dataset? One of

- "coco" (used with a variety of models)
- "mvb" (used with e.g. the yolov4-mvb model)

Value

A character vector of class labels

`ovml_download_if` *Conditional download utility*

Description

If the file already exists in the `ovml_cache_dir()`, it won't be downloaded.

Usage

```
ovml_download_if(url, dest, expected_sha1 = NULL)
```

Arguments

`url`	string: URL of file to download
`dest`	string: local basename of file, if missing will be taken from the URL
`expected_sha1`	string: the expected SHA1 hash of the file

Value

The path to the file in the `ovml_cache_dir()`

`ovml_example_image` *Example images*

Description

Example images

Usage

```
ovml_example_image(choices = 1)
```

Arguments

`choices`	integer: which image files to return? • 1 - an image from a match between GKS Katowice and MKS Bedzin during the 2018/19 Polish Plus Liga • 2 - the standard YOLO dog image

Value

Path to the image files

ovml_plot *Preview plot of detections over image using base graphics*

Description

Preview plot of detections over image using base graphics

Usage

```
ovml_plot(
  img,
  detections,
  line_args = list(col = "blue", lwd = 1),
  label_args = list(col = "white", cex = 0.75)
)

ovml_ggplot(
  img,
  detections,
  line_args = list(col = "blue", size = 0.75, fill = NA),
  label_args = list(col = "white", size = 2.5, fill = "blue"),
  label_geom = "label"
)
```

Arguments

`img`	string or image: filename of jpg image, or image as read by [`jpeg::readJPEG()`]
`detections`	data.frame: as returned by e.g. `ovml::ovml_yolo_detect()`
`line_args`	list: parameters passed to lines (for `ovml_plot()`) or [`ggplot2::geom_rect()`] (for `ovml_ggplot()`)
`label_args`	list: parameters passed to text
`label_geom`	string: for `ovml_ggplot()`, the geom function to use for labels. Either "text" (use [`ggplot2::geom_text()`]) or "label" ([`ggplot2::geom_label()`])

Examples

```
## Not run:
  ## define some demo data
  dets <- data.frame(class = rep("person", 3),
                     score = rep(0.99, 3),
                     xmin = c(829, 611, 736),
                     xmax = c(960, 733, 836),
                     ymin = c(88, 258, 213),
                     ymax = c(278, 444, 385),
                     stringsAsFactors = FALSE)
  img <- ovml_example_image(1)
  ovml_plot(img, dets, line_args = list(col = "red", lwd = 2))
  ovml_ggplot(img, dets) + ggplot2::theme_void()

## End(Not run)
```

process_pose_dets *Process raw detections from pose detection network*

Description

Process raw detections from pose detection network

Usage

```
process_pose_dets(
  pose,
  original_w,
  original_h,
  input_image_size,
  as = "segments",
  letterboxing = FALSE
)
```

Arguments

`pose`	matrix: pose detection network output
`original_w`	integer: input image width
`original_h`	integer: input image height
`input_image_size`	integer: network image size
`as`	string: return results as "segments" or "keypoints"
`letterboxing`	logical: TRUE if the input images were letterboxed to retain their original aspect ratio

Value

A data.frame

`rescale_boxes` *Rescale boxes*

Description

Detection boxes are generally on a scaled image, with size according to the network configuration. This function takes boxes on those images and rescales back to the original image dimensions, optionally accounting for letterboxing.

Usage

```
rescale_boxes(
  bboxes,
  original_w,
  original_h,
  input_image_size,
  letterboxing = TRUE
)
```

Arguments

`bboxes`	numeric: boxes
`original_w`	numeric: original image width in pixels
`original_h`	numeric: original image height in pixels
`input_image_size`	numeric: the network image size in pixels
`letterboxing`	logical: were the input images letterboxed?

Value

Rescaled boxes

`str_trim` *Internal utilities*

Description

Internal utilities

Usage

```
str_trim(x)

is_num_scalar(x)

x %eq% y

make_divisible(x, divisor)

image_wh(im)

image_resz(im, sz, preserve_aspect = TRUE)
```

Arguments

`x`, `y`, `divisor`, `im`, `sz`, `preserve_aspect`
: generic input parms

`xywh2box` *Convert xywh format to bounding box format*

Description

Convert xywh format to bounding box format

Usage

```
xywh2box(prediction)
```

Arguments

`prediction`	matrix: n x m x q matrix of predictions, where the first 4 columns in q are x y w h

Value

A matrix of the same size, with coordinates changed to xmin, ymin, xmax, ymax

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