

CollageBild v1.0 - Information File, André R.S. Marcal, 26 April 2023

This document provides information to help using CollageBild (v1.0), which was developed in Matlab.

The system is described in the paper “Andre R.S. Marcel, 2023, CollageBild: A system to Create Image Mosaics, Bridges2023 Conference Proceedings” (in press).

The following files are provided:

```
* CollageBild_Info.txt      [this text file with information]
* CollageBild_Info.pdf     [pdf with the same information and additional images]
* CollageBild_v10.p        [Matlab function to create a collage]
* CollageBild_BasicSCRIPT.m [Script to assign parameters and to run the function]
* CollageBild_v10_LS1.mlx   [LiveScript to assign parameters and run the function]
* CollageBild_Compare_CMD.m [displays results for 7 color models and distances]
* CollageBild_Compare_N.m   [displays results with 5 values for the parameter N]
* CollageBild_Compare_RIS.m [display results obtained with 5 Reference Image Sets]
* Ref1_Lego.mat             [Reference Image Set 1 - Lego]
* Ref2_MMs.mat              [Reference Image Set 2 - M&Ms]
* Ref3_Tiles.mat            [Reference Image Set 3 - Tiles]
* Ref4_Gouache.mat          [Reference Image Set 4 - Gouache]
* Ref5_Custom.mat           [Reference Image Set 5 - Custom, currently same as Lego]
```

CollageBild function

Syntax: `[IM,D]=CollageBild v10(BaseIM, N, RIS, CMD, NN, S, gr)`

```
Example: [IM,D]=CollageBild_v10('Girasol.png', 15, 1, 5, 1, 2, 1)
```

Input parameters:

BaseIM --- Base Image, any RGB image in standard format (e.g. jpg, png, tif, bmp)

N ----- Number of Blocks (min. No along rows or columns)

RIS ----- Reference Image Set (1- Lego; 2- MMs; 3- Tiles; 4- Gouache, 5- Custom)

CMD ----- Color Model and Distance (1- RGB Euclidean 2- RGB City Block)

(3- HSV Adjusted City Block 4- L*a*b* City Block 5- L*a*b* Hybrid)

(6- L*a*b* Euclidean 7- CIEDE2000)

NN ----- Number of Neighbors used for comparison (Possible values: 1,4,8)

S ----- Number of Sampling points for each blocks (S x S points)

(S=0 to automatically select the largest possible value)

```
qr ----- To control the display of figures (0=None; 1-Basic; 2-Detailed)
```

Output parameters:

IM ----- Collage Image

D ----- Mean color distance

The script `CollageBild_BasicSCRIPT` simply assigns values to the input parameters and runs the function. A `LiveScript` is also provided for the same purpose.

The scripts provided to compare results for different values for the following parameters

* N (number of blocks along row or column), 5 values

* CMD (7 color models and distances), and

* RIS (Reference Image Sets)

with all other parameters fixed.

These scripts (.m) can be easily modified to assign different parameter values.

The reference files (.mat) have a single variable (IM) - a 4 dimensional matrix that contains the reference images, with the following structure:
NoRows x NoColumns x 3 (for RGB) x NoReferences

- * Ref1_Lego has 18 images of 31x31 pixels
- * Ref2_MMs has 22 images of 55x55 pixels
- * Ref3_Tiles has 25 images of 69x69 pixels
- * Ref4_Gouache has 11 images of 39x39 pixels

Ref5_Custom is equal to Ref1_Lego, but its aim is to include an alternative reference set, if required.
