Colociel. Solution for Image Colorization

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1 Presentation

Colociel is a GUI to colorize gray-scale images with a color image reference and
the intervention of the user. The folder `images_example` contains some images
to perform trials. This software is available for Microsoft Windows, Linux and
Mac OS on processor architecture x86_64.

2 Available Versions

If you want to use Colociel:

- With Matlab licence (Windows, Linux, Mac OS): please read Section 3

- Without Matlab licence

    - with Linux: please read Section 4
    - with Windows: please read Section 4

3 Users with Matlab Licence

Depending on your OS, open the folder `COLOCIEL_yourOS_Matlab`, and run
`colociel.p` with Matlab.

4 Users without MATLAB Licence

Depending on your operating system, download and install the Linux/Windows
64-bit version of the MATLAB runtime for R2015a from the MathWorks web-
site:

http://www.mathworks.com/products/compiler/mcr/index.html

4.1 For Linux:

During the installation of MCR, you have to choose a directory for instal- la-
tion. For example '`~/temp_mcr`'. Please remember it because it will be used for
execution. To run Colociel, please type in a terminal:

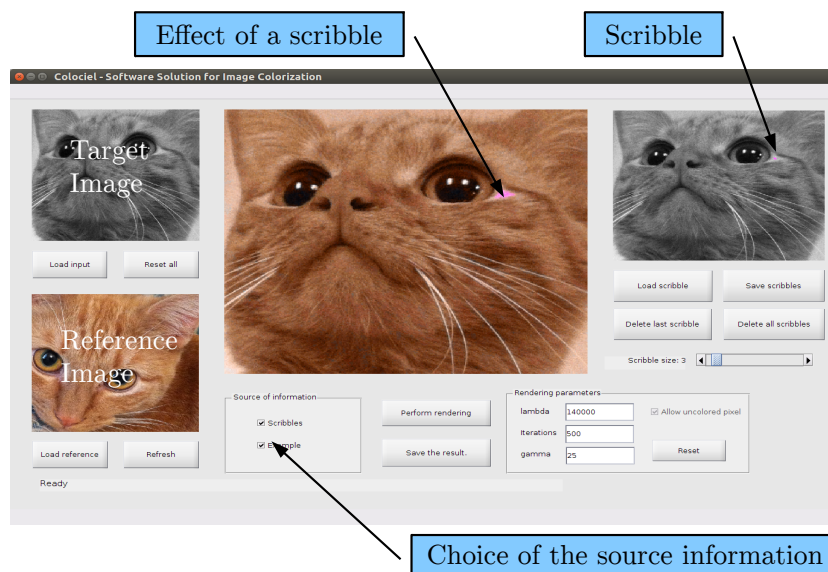`./run_ colociel.sh /temp_ mcr/v85`

where `~/temp_mcr/v85` is the directory where the MATLAB runtime is in-
stalled.

4.2 For Windows:

- Run the installer.

- Run colociel.exe to execute the software.

Depending of your system, the application can need 20 seconds to start. Please wait.

5 Use of Colociel

Colociel enables the user to use both a reference image and some scribble to colorize images. First of all load an input image (top left).

There are two possibilities: load reference image (bottom left) or use scribbles. In the latter case case, you can load a scribble file or draw directly on the central part of the software. After scribbling, the user is invited to choose a color to propagate. Scribbles can be saved (top right). 'Perform rendering' apply a regularization step during the colorization. Its parameters can be modify within the associated panel (bottom right).

Colociel is provided with a set of test images (images_example folder). Three types of images are provided: gray-scale images to colorize, reference images and scribbles.

6 How to cite this Software

If you use this software for experiments, please cite [2, 3, 1]:

```
@misc{Pierre2016Colociel,
        title = {Colociel},
        author = {Pierre, Fabien and Aujol, Jean-Fran\c{c}ois and
        Bugeau, Aur\'elie  and Ta, Vinh-Thong},
          year = {2016},
         howpublished = {Dépôt Agence de Protection des Programmes
           N° IDDN.FR.001.080021.000.S.P.2016.000.2100}
}

@article{PierreABPT15,
         year = "2015"
        pages = "536--563"
      journal = "SIAM Journal on Imaging Sciences"
        title = "Luminance-Chrominance Model for Image Colorization"
       author = "Pierre, Fabien and Aujol, Jean-François and Bugeau,
       Aurélie and Papadakis, Nicolas and Ta, Vinh-Thong"
}

@inproceedings{PierreABT14,
         year = "2014"
        pages = "1--12"
    booktitle = "ECCV, CPCV Workshop"
        title = "A Unified Model for Image Colorization"
       author = "Pierre, Fabien and Aujol, Jean-François and Bugeau,
       Aurélie and Ta, Vinh-Thong"
}
```

7   Aknowledgment

References

[1] Fabien Pierre, Jean-François Aujol, Aurélie Bugeau, and Vinh-Thong Ta. A unified model for image colorization. In *Color and Photometry in Computer Vision (ECCV Workshop)*, pages 1–12, 2014. Available online at https://hal.archives-ouvertes.fr/hal-01038055/document.

[2] Fabien Pierre, Jean-François Aujol, Aurélie Bugeau, and Vinh-Thong Ta. Colociel. Dépôt Agence de Protection des Programmes N° IDDN.FR.001.080021.000.S.P.2016.000.2100, 2016. Available online at http://www.labri.fr/perso/fpierre/colociel_v1.zip.

[3] Fabien Pierre, Jean-François Aujol, Aurélie Bugeau, Nicolas Papadakis, and Vinh-Thong Ta. Luminance-chrominance

model for image colorization. *SIAM Journal on Imaging Sciences*, 8(1):536—-563, 2015. Available online at `http://www.labri.fr/perso/fpierre/documents_enligne/pierre2015` `luminance.pdf`.