

DIGITAL MEDIA WINTER INSTITUTE
31 january - 4 february • NOVA University Lisbon • Portugal

SMART DATA SPRINT 2022

discussing methods making



Universidade Nova de Lisboa | NOVA FCSH I iNOVA Media Lab
Digital Media Winter Institute | SMART Data Sprint 2022

Discussing Methods Making

31 January - 4 February 2022 | 9:00 - 18:00

#SMARTdatasprint | <https://smart.inovamedialab.org/>

Visualising collection of images

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Link to the slides: <https://bit.ly/SMART22images>

This practical lab explores various techniques to perform image analysis with ImageSorter, ImageJ, Pixplot, and PicArrange.

If you use this recipe in a (scientific) publication, please cite the following references:

Colombo G (2018). **The design of composite images: Displaying digital visual content for social research**. PhD thesis, Politecnico di Milano.

Ricci , D., Colombo , G., Meunier , A., & Brilli , A. (2017). **Designing Digital Methods to Monitor and Inform Urban Policy: The Case of Paris and its Urban Nature Initiative**. International Conference on Public Policy (ICPP3). <https://hal.archivesouvertes.fr/hal-01903809>

Colombo, G. ., & Niederer, S. (2021). Diseña 19 | **Visual Methods for Online Images: Collection, Circulation, and Machine Co-Creation**. *Diseña*, (19), Intro. <https://doi.org/10.7764/disena.19.Intro>

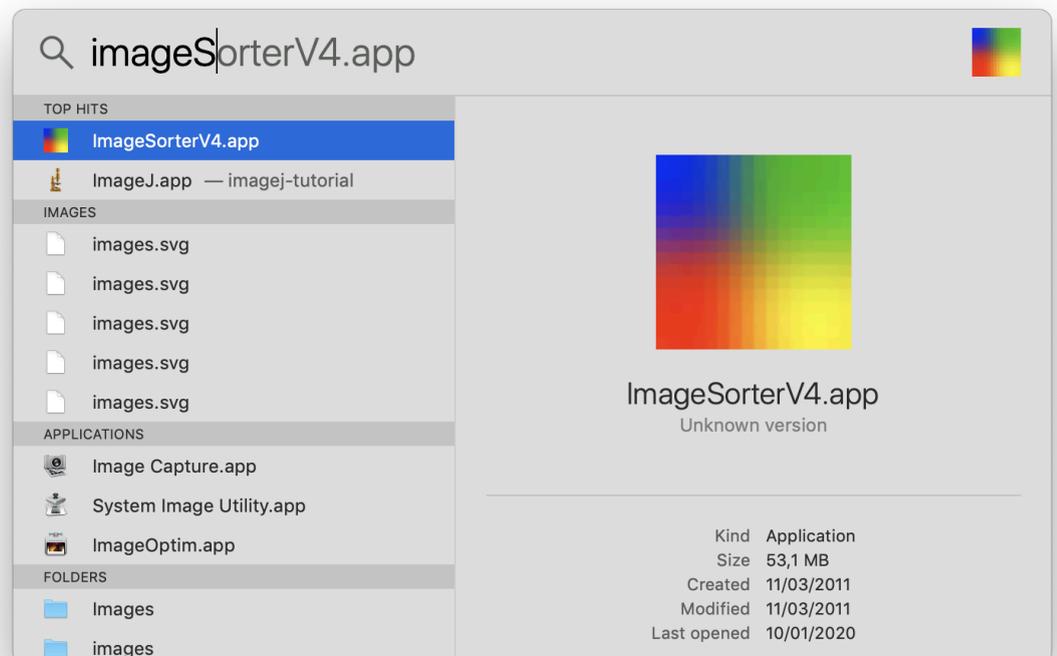
Niederer, S., & Colombo, G. (2019). **Visual Methodologies for Networked Images: Designing Visualizations for Collaborative Research, Cross-platform Analysis, and Public Participation**. *Diseña*, (14), 40–67. <https://doi.org/10.7764/disena.14.40-67>

- ImageSorter: grid of images

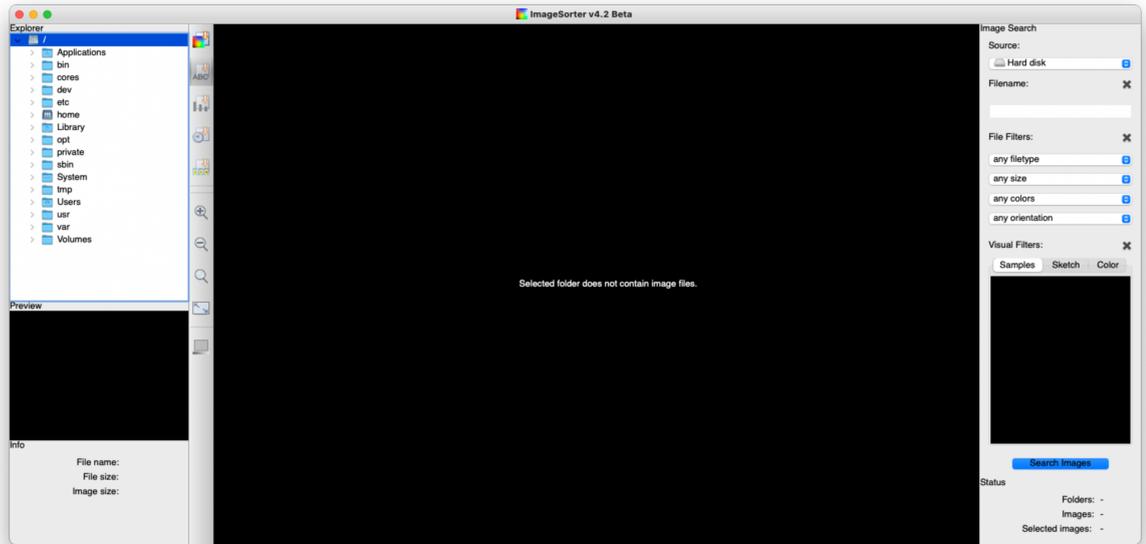
Link to download the tool: <https://visual-computing.com/project/imagesorter/>

A tool to quickly look at an image-based dataset. ImageSorter orders your image-based dataset in a grid, clustering images by colour and similarities.

1. Open ImageSorter



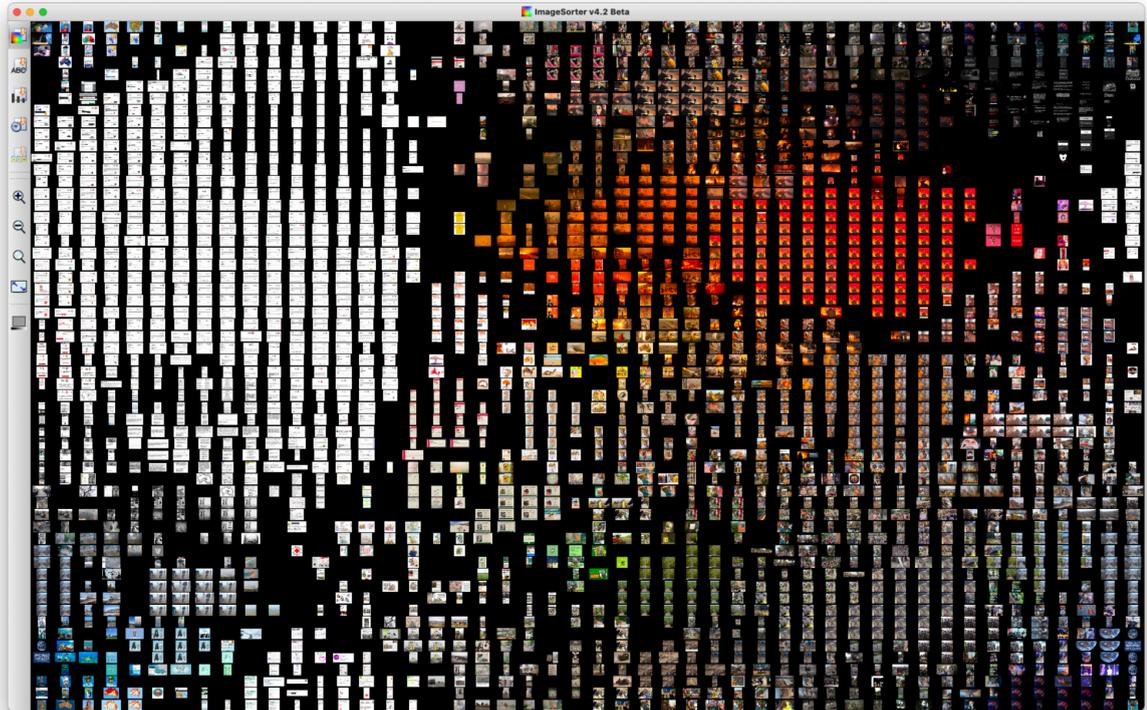
2. Select the folder you want to visualise from the list shown in the right part of the tool. The list displays all the folders on your computer.



3. Click “Load and sort images”



4. Your images will be loaded and automatically sorted by color. From the left bar you can choose how to sort your collection:
- by color
 - by name
 - by size
 - by date
 - by similarity



⊖ Keep in mind that you cannot export this visualisation in any format. The only way to keep it is to take a screenshot.

- ImageJ: image stacks

Link to download the tool: <https://imagej.nih.gov/ij/download.html>

Link to the browser version (no download needed, but some features may be not available): <https://ij.imjoy.io/>

A tool to visualise images from microscopes and repurposed as a tool for data visualisation. ImageJ creates visualisations of groups of images with built-in functions, as well as macros.

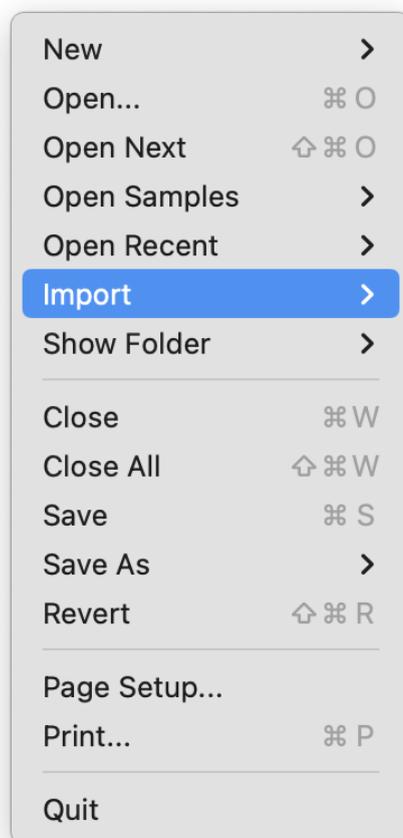
💡 Tip: to make this technique work, segmenting images in smaller groups helps in generating more interesting results.

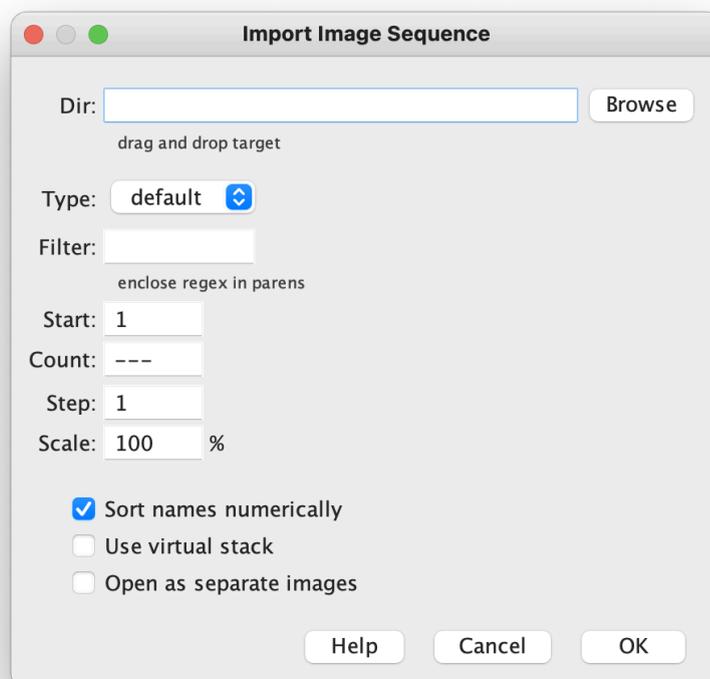
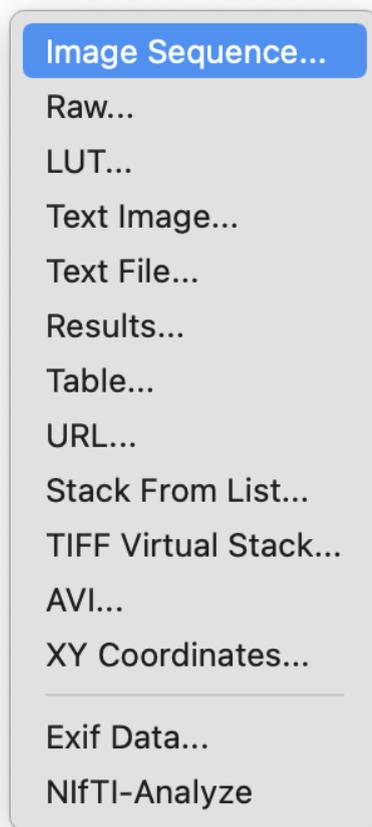
1. Make all your images the same size (i.e.: a square). You can use [BulkResizePhotos](#) to make them all the same size.

2. Open ImageJ

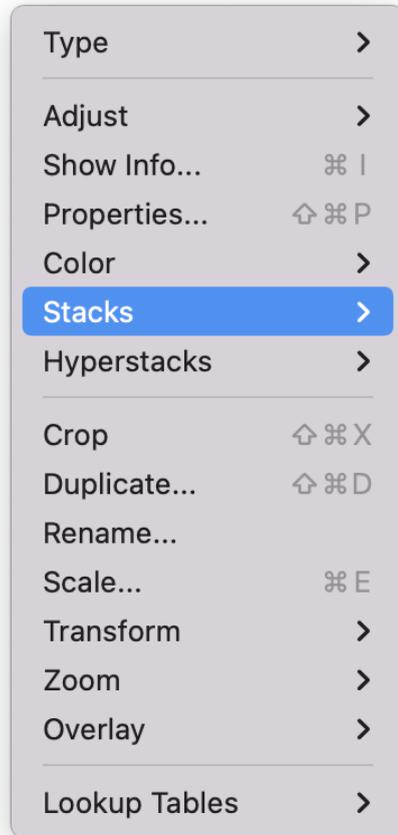


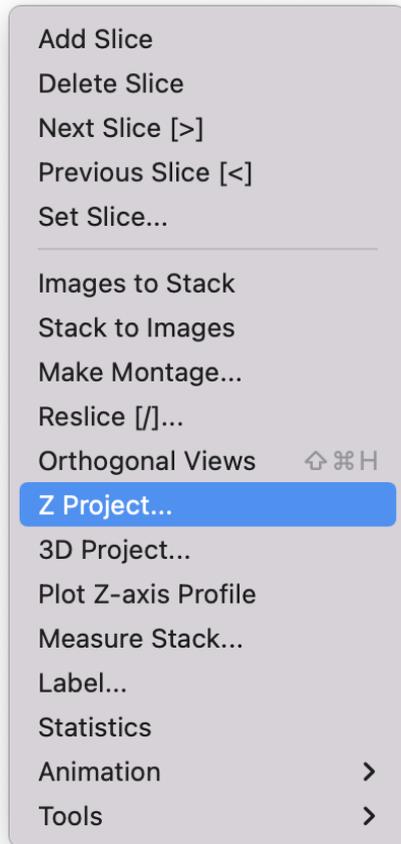
3. Click on File → Import → Image sequence... and select the folder of images



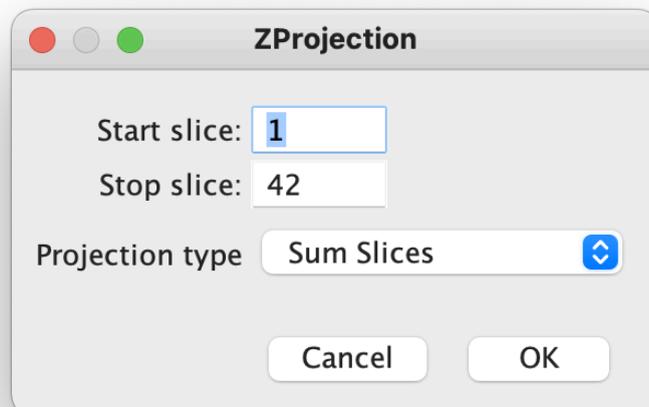


4. From the main menu, select Images → Stacks → Z Project





5. Z Project will use mathematical models to project all frames from the images in the stacks onto a single “plane”. These mathematical models highlight different formal aspects of the images. Feel free to experiment with them!



6. The result is a stack of the folder of images you selected.

- PixPlot

Reference: <https://github.com/YaleDHlab/pix-plot>

PixPlot is an open source web-based software that creates a map of visual similarity from a corpus of images. It uses Google's Tensorflow to calculate similarity between images.

1. Install Anaconda:

In (macOS) Terminal or (Win) Command Prompt type:

```
conda create --name=3.7 python=3.7
```

```
source activate 3.7
```

And then:

```
pip uninstall pixplot
```

```
pip install https://github.com/yaledhlab/pix-plot/archive/master.zip
```

2. Once Anaconda is started and dependencies are installed (previous slide), type:

```
pixplot --images "path/to/images/*.jpg"
```

`path/to/images/` indicates the path to the folder of your images.

*.jpg selects all files that end with .jpg. Do not change this part.

This line starts the analysis of your images.

 **Tip: if you don't have jpegs, you can use <https://bulkresizephotos.com/en> to change the format of your images.**

3. Once analysis of the images is completed, type:

```
python -m http.server 5000 or python -m http.server 8000
```

to start a local server (a website running on your computer alone and on a specific port) to see your visualisation results.

The results will be available at `http://0.0.0.0:5000/output` or `http://0.0.0.0:8000/output` depending on the port you choose.

- PicArrange (mac OS only)

Link to the app on the App Store:

<https://apps.apple.com/us/app/picarrange/id1530678223?mt=12>

PicArrange allows you to navigate folders of images based on colour similarity, however not in a 2D matrix. Additionally, it allows searching for similar images to a seed of pictures given by the user in the same folder. It is more suited for clustering collections of images into smaller segments or collections.

1. Open PicArrage



2. Select the folder you want to visualise from the list shown in the right part of the tool. The list displays all the folders on your computer.
3. Sort your images by colour, creation date, modification date, name, size and similarity from the bottom bar.

💡 Tip: images sorted by the “similarity” criteria will be arranged starting from an image of your choice and from the most similar to the less similar in content.

