

Join the slack

https://join.slack.com/t/mlbriefsworkshop/shared_invite/zt-1h4sz13v9-Lqc2d2xpaJ22klhi_jeFcw

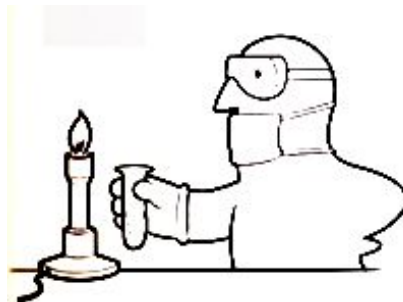
MLBRIEFS II

10~14/10/2022

Project BPI SESAME OVDSaaS



<https://centreborelli.github.io/MLBriefs2022/>



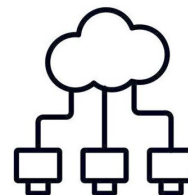
100x



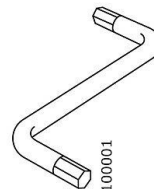
60x



60x



1x



1x

IDEA: CREATE IPOL-LIKE ARTICLES

A [classic IPOL article](#) have two components:

- a. An article (PDF) describing a method in detail
- b. An online demo of a method (whose code is reviewed)

What is different in the MLBriefs articles*

- Code does not need to be peer-reviewed
- Short articles with no more than 10 pages (intro, method, results)

* you can still do a CLASSIC IPOL article if you like

IPOL ARTICLES: article + demo + archive

LOW RESOLUTION PDF: images may show compression artifacts. A full resolution PDF is available at www.ipol.im.



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This article is available online with supplementary materials,
software, datasets and online demo at:
<https://doi.org/10.5201/ipol.2022.403>

DeOldify: A Review and Implementation of an Automatic Colorization Method

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Communicated by Gregory Randall Demo edited by Lucía Bouza

Abstract

DeOldify is a recent automatic colorization method based on Convolutional Neural Networks which yields impressive results. The method was initially created by Jason Amic with the support of the Californian start-up Fast.ai and thus does not come from the academic research world. The goal of this paper is twofold. First we propose a rigorous mathematical presentation of the method along with a critical analysis of its different steps. Second, we provide an open-source implementation of a simplified but effective version of the approach, based on Pytorch and without dependence on the Fast.ai framework.

Source Code

The reviewed source code and documentation for this implementation are available from the web page of this article¹. Compilation and usage instructions are included in the README and file of the archive.

Supplementary Material

A video colorized by the network is provided in the web page of the article.

Keywords: colorization; transfer learning; neural networks; CNN

¹<https://doi.org/10.5201/ipol.2022.403>

ANTOINE SALMONA, LUCÍA BOUZA, JULIE DELON. DeOldify: A Review and Implementation of an Automatic Colorization Method. Image Processing On Line, 12 (2022), pp. 347-368. <https://doi.org/10.5201/ipol.2022.403>

Parameters

Reset

render_factor Max: 24 Min: 8

saturation_value Max: 2.5 Min: 1.5

Run

Execution successful

Results

Colorized image

Gray-scale image

Original image

☒ Compare



Colorized image

Gray-scale image

Original image



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DeOldify: A Review and Implementation of an Automatic Colorization Method

Article Demo Archive

Please cite the reference article if you publish results obtained with this online demo.

69 public experiments since 2022-09-05

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First Previous 1 2 3 4 5 6 7 Next Last Go to page: (1 ... 7) Go

Experiment #525561.
2022-09-21 02:58:58 UTC

Parameters
render_factor 16
saturation_value 2



Input image



Gray-scale image



Colorized image

Reconstruct

Experiment #525562.
2022-09-21 02:59:34 UTC

Parameters
render_factor 12
saturation_value 1.5



Input image



Gray-scale image



Colorized image

Reconstruct

Experiment #525565.
2022-09-21 03:19:11 UTC



Info about the previous MLBRIEFS (April 2022)

73 registered

38 submitted articles

22 ready for publication

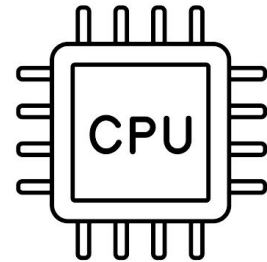
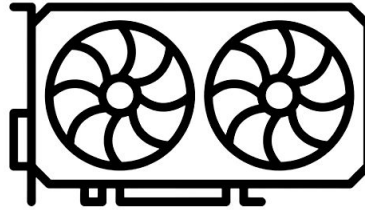
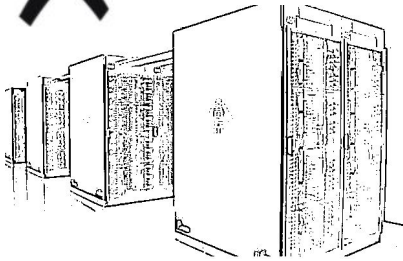
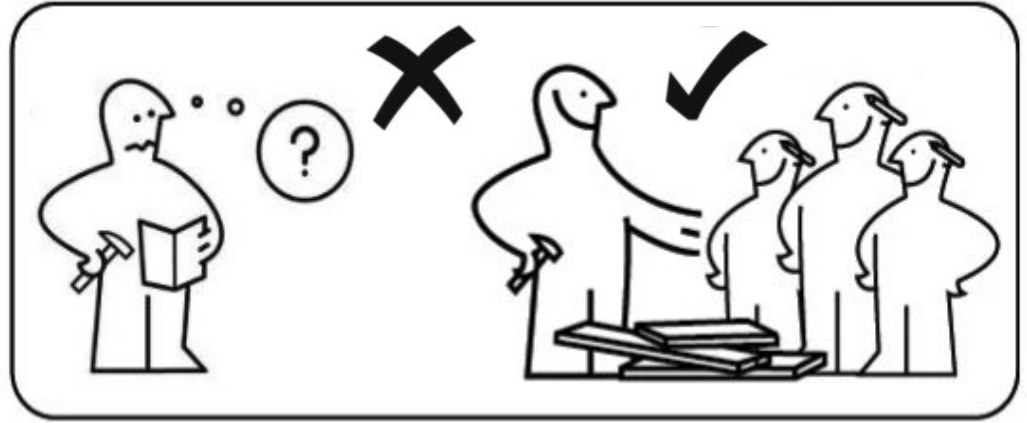


WHAT CHANGED SINCE MLBRIEFS I?

- New containerized demos **easier to deploy**
- Github to host the source code
- New Control Panel: <https://ipolcore.ipol.im/cp2/>
- Notebooks no longer a preferred option

IDEA

- Don't work alone
- Keep an eye on resources



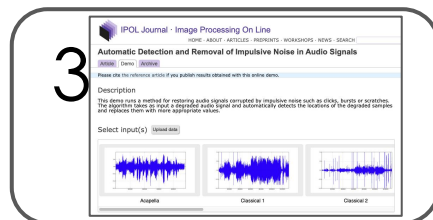
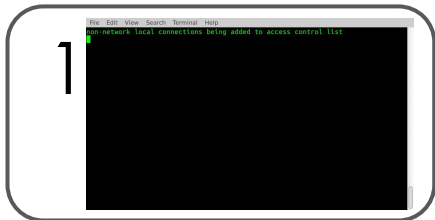
ORGANIZATION FOR THE WEEK ([see web](#))

- Plenary tutorials (morning)
 - Monday: code preparation: J. Anger
 - Tuesday: how to make a demo: J. Anger, Q. Bammey
 - Thursday: recommendations on article writing: L. Oudre
- Plenary presentations of some articles from MLBriefs 1 (morning)
 - Monday: R. Grompone, R. Mari, Q. Laborde ou A. Mazarguil
 - Wednesday: A. Artola, T. Ehret, Q. Bammey
 - Thursday: M. Gardella, N. L. Nguyen
- Plenary 1 min presentation of YOUR plan: **Tuesday morning**
- Plenary 3 min presentation of the result: **Friday morning**
- All afternoons: work on demos/articles with assistance of monitors

Creating a demo

"It's a UNIX system! I know this!"

1. Make sure your application/script has arguments inputs and outputs, identify **code** and requirements. All this **goes into a github repository**
2. **Define the interface** and **the application parameters** in the control panel **CP2**
3. The demo system will then generate the application to generate the webpage in the online demo



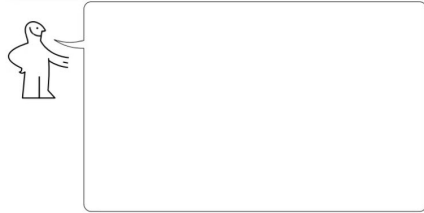
TEST YOUR CP2 ACCOUNT!

- From CP2: <https://ipolcore.ipol.im/cp2/?qfilter=mlbriefs2&page=1>
- From: <https://ipolcore.ipol.im/demo/>
- Your demo **has your name:**

Demo #77777000375 : [Jules Tsukahara's MLBriefs2 demo \(Multiview Diffusion Maps\)](#)
Demo #77777000374 : [Zhe Zhng's MLBriefs2 demo \(High-Quality Self-Supervised Deep Image Denoising\)](#)
Demo #77777000373 : [Anis Ben Mabrouk's MLBriefs2 demo \(YOLO\)](#)
Demo #77777000371 : [Ioannis Bargiotas's MLBriefs2 demo \(Random Forest's Out-of-Bag optimal performance as a proxy for multivariate two-sample hypothesis testing\)](#)
Demo #77777000369 : [Valéry DEWIL's MLBriefs2 demo \(update later\)](#)
Demo #77777000368 : [Susanne Støle-Hentschel's MLBriefs2 demo \(Tracking the evolution of ocean waves\)](#)
Demo #77777000367 : [Laborde Quentin's MLBriefs2 demo](#)
Demo #77777000364 : [Sylvain JUNG's MLBriefs2 demo](#)
Demo #77777000363 : [Vincent Laurent's MLBriefs2 demo \(Active learning for surface response estimation\)](#)
Demo #77777000361 : [Khoa Nguyen's MLBriefs2 demo](#)
Demo #77777000360 : [Carlo de Franchis's MLBriefs2 demo](#)
Demo #77777000359 : [Franco Marchesoni's MLBriefs2 demo \(More general splines for color enhancement\)](#)
Demo #77777000357 : [Marie d'Autume's MLBriefs2 demo \(Demo of an infrared small target detection network\)](#)
Demo #77777000355 : [Samuel Gruffaz's MLBriefs2 demo \(Learning Riemannian Metric for disease progression modeling\)](#)
Demo #77777000354 : [rafael grompone's MLBriefs2 demo](#)
Demo #77777000353 : [Enric MEINHARDT-LLOPIS's MLBriefs2 demo](#)
Demo #77777000350 : [Antoine Mazarguil's MLBriefs2 demo \(A dataset of human movement\)](#)
Demo #77777000349 : [Max DUNITZ's MLBriefs2 demo \(Local Color Transform for Image Enhancement\)](#)
Demo #77777000348 : [Anthea Mérida's MLBriefs2 demo \(Initializing Neural Networks using Decision Trees\)](#)
Demo #77777000347 : [Barral Arnaud's MLBriefs2 demo](#)
Demo #77777000345 : [ElYES Ouerghi's MLBriefs2 demo](#)
Demo #77777000344 : [Sam Perochon's MLBriefs2 demo \(Still unknown\)](#)
Demo #77777000342 : [Anne ZHAO's MLBriefs2 demo](#)
Demo #77777000341 : [Marina gardella's MLBriefs2 demo \(Noisesniffer: a Fully Automatic Image Forgery Detector Based on Noise Analysis\)](#)
Demo #77777000340 : [Nguyen Ngoc Long's MLBriefs2 demo](#)
Demo #77777000339 : [Matthieu Serfaty's MLBriefs2 demo](#)
Demo #77777000338 : [Antoine Tadoc's MLBriefs2 demo \(Energy-based Out of distribution Detection\)](#)

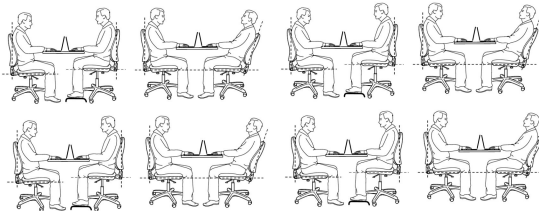
WHERE – WHEN – QUICKLOOK ([see web](#))

Plenaries: 1B36 (mornings)



Workshops: 2U42, 2U47, 2S41,
2S48, ~~2X42~~, ~~2Z41~~

Daily



Zoom link:

<https://us02web.zoom.us/j/85160330468?pwd=MVdkbEVnYWRRJZ01Ed0RwRHh3bDdmUT09>

Meeting ID: 851 6033 0468

Passcode: 913145

Lunch: 1E29

except today

Daily 12h-14h



1 MIN PRESENTATION (DAY 2)

~1 min
presentation
example



- Explain what your method does with: input/output
- Why is it interesting?
- Don't go into details nobody will understand
- Can be tested on small input data



**~1 min
presentation
example**



~1 min
presentation
example



Monocular depth estimation

- Depth perception is a fundamental task in vision and recent DL methods have become extremely good at estimating it **from a single image!**
- **Input:** 1 image **Output:** 1 depth map
- Fast and pretrained weights are available!



Reference: [Miangoleh, S. Mahdi H., et al. "Boosting monocular depth estimation models to high-resolution via content-adaptive multi-resolution merging." 2021.](#)

A title for the work

Motivation

- What's all about
- Mention some keywords

Example

- Anything visual that could make clearer the problem, the task, the data

A title for the work

List of methods

- Time-series Clustering (K-means + DTW + Time-series averaging)

Demo ideas

- **For a single signal:**
 - Signal display
 - Functional analysis of plethysmography features.
 - Symbolic representation
- **For multiple signals:**
 - Symbolic representation comparison

Type of data

- Plethysmography signals

Data

- Mice nasal airflow

Code

- Available

Packages

- numpy, scipy, pandas, plotly, scikit-learn, joblib
- ruptures, tslearn

Monitors

Jérémy Anger,
Charles Hessel,
Tina Nikoukhah,
Quentin Bammey,
Gabriele Facciolo,
Thibaud Ehret,
Miguel Colom,
Jyotsna Rajan,
Héctor Macías,
Adrien Courtois,
Marie d'Autume,
Enric Meinhardt-Llopis,
Jose Armando Hernandez,
Yanhao Li,
Roland Akiki,
Ioannis Bargiotas,
Charles Truong



DAY 1

Morning

Intro, concept, timetable, organization, test CP2 account. Example of 1 minute slides.	9h00 - 9h30	1B36
Presentations of 3 MLBriefs 1 (the previous edition) published papers.	9h30 - 10h30	
Code formatting, parameters, input/output (files + environment variables)	10h30 - 11h30	

Lunch

Sandwiches	12h00 - 13h00	Bibliothèque, 2S33
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Afternoon

Authors work on their codes and prepare a 3mn presentation of their idea with one slide explaining why the idea is interesting. Expected slide content: sescription, typical input, typical output.	13h00 - 18h00	2U42, 2U47, 2S41, 2S48, 2X42, 2Z41
Coffee break directly delivered in the working spaces.	15h30 - 16h00	
In parallel: editorial board meeting.	~	

DAY 2

Morning

1 minute presentation of the MLBriefs 2 papers.	9h00 - 10h30	1B36
How to create a MLBriefs demo?	10h30 - 12h00	

Lunch

Buffet!	12h00 - 13h00	1E29
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Afternoon

Authors work on their demo assisted by monitors.	13h00 - 18h00	2U42, 2U47, 2S41, 2S48, 2X42, 2Z41
Coffee break directly delivered in the working spaces.	15h30 - 16h00	
In parallel: editorial board meeting.	~	

Announces

- Wednesday and Thursday we start at 10am
- Updated workshop rooms: 2U42, 2U47, 2S41, 2S48, ~~2X42, 2Z41~~

DAY 4

Morning

Presentations of 2 MLBriefs 1 published papers.	10h00 - 11h00	1B36
How to write an article?	11h00 - 11h30	
Q&A and an example of slides for day 5	11h30 - 12h00	

Lunch

Buffet!	12h00 - 13h00	1E29
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Afternoon

Authors work on their demo assisted by monitors and start writing their article.	13h00 - 18h00	2U42, 2U47, 2S41, 2S48,
Coffee break directly delivered in the working spaces.	15h30 - 16h00	2X42, 2Z41

TOMORROW

- **Authors present their demo+article** (9h-12h)
 - Short 3 min presentations of the demos
 - Receive feedback

Upload your presentations here:

<https://kiwi.cmla.ens-cachan.fr/index.php/s/fC55n8qASYtesyg>

- **Announcement of best papers from MLBriefs 1!**

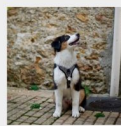
DAY 5

3 slide presentation example

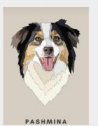


Towards Flexible Blind JPEG Artifacts Removal

Select input(s)



Q=50



Input(s)

☒ input

☐ Crop



Zoom 1.00x
318 x 159



Parameters

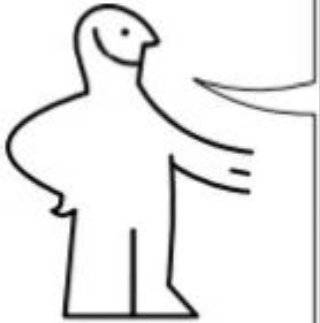
Type

☒ Blind

☐ Flexible control

DAY 5

3 slide
presentation
example



Towards Flexible Blind JPEG Artifacts Removal



DAY 5

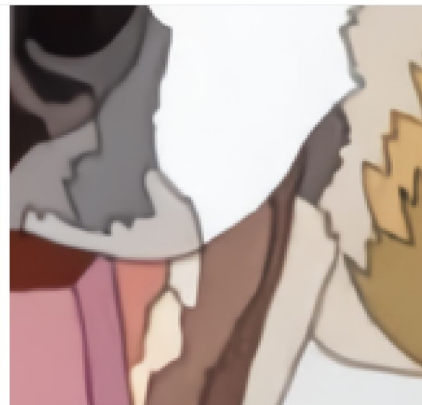
3 slide presentation example



Towards Flexible Blind JPEG Artifacts Removal

- Neuronal network based method ICCV [Jiang et al. 2021]
- The demo is dockerized demo with DDL output
- Experimentation observation: the claims of the original paper seem to be slightly overstated when performing the quality estimation in the case of several compressed images.

Input
Output
Diff
☒ Compare



Input
Output
Diff

DAY 5 : Best papers!



DAY 5 : Next steps

- Finish your article
- Submit it to easychair, deadline is: XXX
 - Easychair link will appear on the website next week
- Reviews will move faster
- Next MLBriefs (3) - apr 2023

