

# Exercise Session 1

## Image Processing

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# Requirements for JMCS Students

- Register for BeNeFri network
- Make sure you request access for Academia
- Deadline: September 30<sup>th</sup>  
Request access as soon as possible.
- <https://mcs.unibnf.ch/organization/registration-for-teaching-units/>
- <https://mcs.unibnf.ch/organization/>

# Assignments

- During the semester you will be given several assignments that you have to solve **individually**.
- **80% of all** assignments are due and considered to be sufficient.
- Submit your work **before** the deadline even if not everything is working.
  - Just add a brief summary of what is and is not working and what you have tried.
  - If you can not submit your exercise, send us an email.
  - Please follow the instructions for hand-in

# Assignment 1 – Flipping Images

- Deadline: Tuesday, October 3, 2022 (end of day)
- Instructions for assignment 1 are on ILIAS.
- “HS2023: 33115 Image Processing” → Exercise

ILIAS Universität Bern

Repository > iTools, Portale, weitere Angebote > Affiliated Institutions > BeNeFri Joint Master in Computer Science > HS2023 > HS2023: 33115 Image Processing > Exercise

## Exercise

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### Content



Hand-in

Deadline: 15 Days, 10 Hours, 22 Minutes



Images

# Assignment 1 – Flipping Images

- Main part of assignment 1:  
**Implement your own flipping algorithm**
  - Your algorithm should flip an image horizontally and/or vertically.
  - Apply your algorithm one an image (example are provided on ILIAS)

Original image



Flip horizontal



Flip vertical



Flip horizontal and  
vertical

# Assignment 1 – Flipping Images

- Create a program that can load, show and save image files
- Complete your program with a function that **can flip an image horizontally and/or vertically**.
- Write your **own algorithm** (without using a package).
- Your algorithm should be applied either vertically or horizontally or both together.
- Apply your algorithm on an image of your choices or one of the on ILIAS provided image:  
[https://ilias.unibe.ch/goto\\_ilias3\\_unibe\\_fold\\_2851666.html](https://ilias.unibe.ch/goto_ilias3_unibe_fold_2851666.html)

# Hand-in

- You have to hand-in your solution on ILIAS only (no email).
- “HS2023: 33115 Image Processing” → Exercise → Assignment hand-in
- Submission:
  - one flip image horizontally and vertically,
  - the original image where you applied your flip algorithm,
  - a text file with your name, surname, the link to you GitHub, a brief description of your flipping algorithm.

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Repository > iTools, Portale, weitere Angebote > Affiliated Institutions > BeNeFri Joint Master in Computer Science > HS2023 > HS2023: 33115 Image Processing > Exercise > Hand-in

## Hand-in

Assignments Info Settings Submissions and Grades Learning Progress Metadata Export Permissions

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Assignment 1 (Mandatory)  
Remaining Working Time: 15 Days, 10 Hours, 26 Minutes Edit Until: 03. Oct 2023, 23:55

### Schedule

|                        |                               |
|------------------------|-------------------------------|
| Edit Until             | 03. Oct 2023, 23:55           |
| Remaining Working Time | 15 Days, 10 Hours, 26 Minutes |

### Your Submission

|                 |                                   |
|-----------------|-----------------------------------|
| Submitted Files | You have not submitted any files. |
|-----------------|-----------------------------------|

Hand In

# Resources

- Tutorial “Create a Reproducible Research Environment”:  
[https://github.com/lvoegtlin/ICDAR\\_CRRE\\_Tutorial](https://github.com/lvoegtlin/ICDAR_CRRE_Tutorial)
  - Especially the first two parts about Git and Conda environments are helpful:  
[https://github.com/lvoegtlin/ICDAR\\_CRRE\\_Tutorial/tree/master/Part\\_1](https://github.com/lvoegtlin/ICDAR_CRRE_Tutorial/tree/master/Part_1)  
[https://github.com/lvoegtlin/ICDAR\\_CRRE\\_Tutorial/tree/master/Part\\_2](https://github.com/lvoegtlin/ICDAR_CRRE_Tutorial/tree/master/Part_2)
- Pillow tutorial – Working with images in Python:  
<https://pillow.readthedocs.io/en/stable/handbook/tutorial.html>
- NumPy quickstart guide – Working with matrices in Python:  
<https://numpy.org/doc/stable/user/quickstart.html>



## What to do if you are stuck?

- Try to look through the provided resources again
- Try googling it
- If you are still stuck, do not hesitate to email me directly:
  - [anna.scius-bertrand@unifr.ch](mailto:anna.scius-bertrand@unifr.ch)

# Questions?