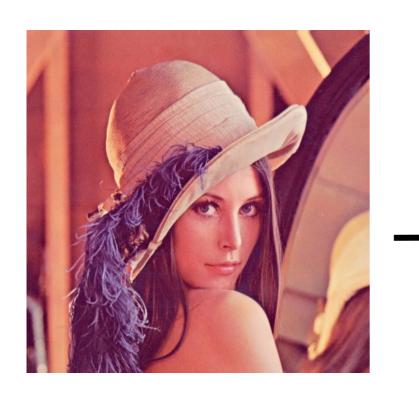
Automatic Image Analysis Exercises 1

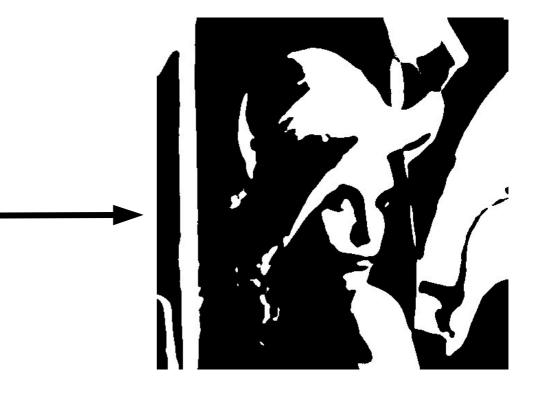
Technische Universität Berlin (TUB), Computer Vision and Remote Sensing Group Berlin, Germany



Goal

Smooth and binarize image







Goal

Smooth and binarize image

→ Simple image preprocessing task

→ No own implementation of algorithms necessary, just use of library functions

→ Learning goal: get comfortable with the framework





Programming Environment

- A) Manage Python libraries yourself
 - 1. Install Python 3.7+
 - 2. Install pip
 - 3. Install opency, numpy, pytorch etc.
- B) Use Anaconda
 - 1. Download Anaconda: https://www.anaconda.com/products/distribution
 - 2. bash <Download-dir>/Anaconda3.sh
 - 3. pip install opency-python
- C) Use Docker



Python

- Execute program:
 - → python <file.py> arg1 arg2 ...
- Run interactively:
 - → Python
- Install libraries
 - → pip install <package>
 - → conda install <package>



Python-Basics

- Dynamic typing
- Indentations are used to structure code
- Try to understand following concepts:
 - Data types
 - → Functions
 - → Control flow (if, loops, function calls, etc.)

```
import numpy as np
import cv2
# Creating and assigning variables
A = 5
B = "This is a string"
C = [True, 2, "3", 4]
D = (A,B)
B.A = A.B
# Defining a function
def func(x,y,z):
    # if-statements
    if x < 5 and y > 6:
        return True
    # for-loops
    for i in range(10):
        print(i)
    # return
    return x+1, y+z
if __name__ == "__main__ ":
    a, b = func(1,2,3)
```



Handout

contains main-method and TODOs. ex1.py

Only modify this file!

utils.py contains helping methods

checks your implementation test.py

test.jpg example image



Submission

→ The due date for this assignment is April 27th 14:00

→ Ask questions in the exercise discussion forum if you get stuck.

→ Fix bugs until all tests are completed successfully

Plagiarism

- → We take plagiarism seriously.
- → If you can't manage to get your stuff done please ask for help, don't copy from other students/groups
- → Plagiarism leads to immediate dismissal from the course
- → In extreme cases we can deny the student an exam even in future semesters



