

## Mathematical modelling and computer simulations in theory and practice

Documentation of laboratory task no 9

Title: IMAGES MANIPULATION

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Field of studies: Informatics (sem.V)

### ***Project Objective:***

Project objective is to visualise different procedures that can be used to manipulate images in Mathematica.

### ***Description:***

Our program is going to be taking different kind of images and perform some basic manipulations on it. Applying sharpening, blur or editing different parameters is all going to be possible.

Inputs:

1. Paths to directory and names of both pictures.
2. Value of combination – 0 is fully the first image and 1 is fully the second picture.
3. Radius of blur.
4. Radius of sharpening.
5. Correction of brightness.
6. Correction of contrast.
7. Correction of gamma.

**Directory path**

"/home/radek/Desktop/z\_uczelni/  
INF\_MS\_5/Mathematical  
modeling and simulation"

**Image 1 name**

"me.jpg"

**Image 2 name**

"hands.jpg"

Import

**Pictures combination**

currentView ☐

**Picture rotation [rad]**

rotationAngle

**Radius of blur**

blurRadius

**Radius of sharpening**

sharpenRadius

**Brightness correction**

brightness

**Contrast correction**

contrast

**Gamma correction**

gamma

Figure 1: Program inputs.

#### Outputs:

As an output program displays our pictures with according filters and edits. When the program is first launched it may display error in manipulate, but don't worry – enter correct paths and names, after that press 'Import' button. If you ever want to change images or directories go with the same procedure.

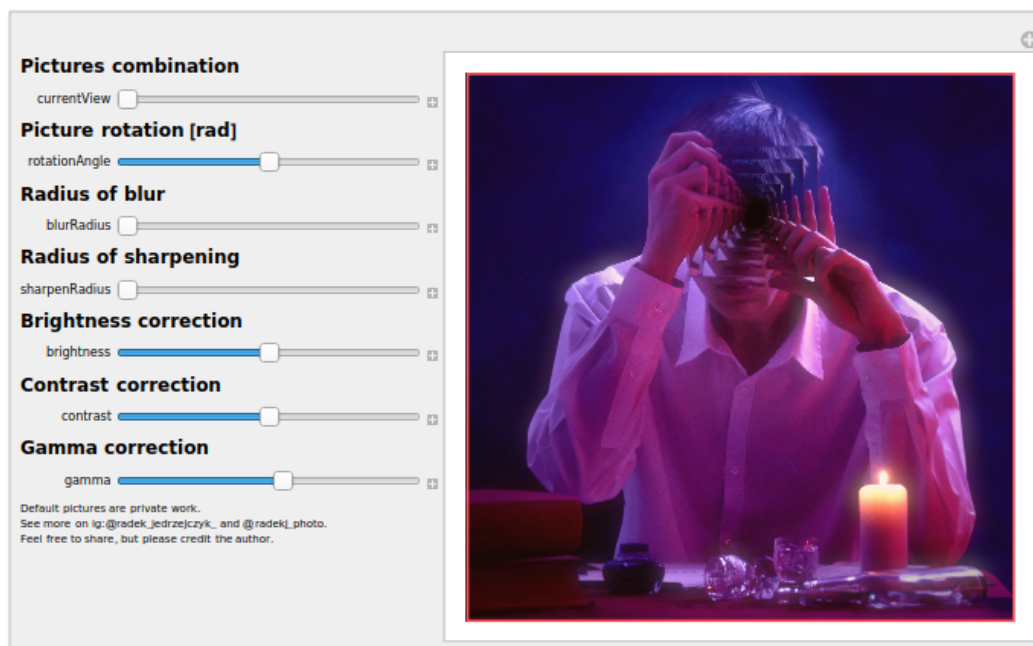


Figure 2: Default image after import.

All corrections are applied to both pictures at the same time.

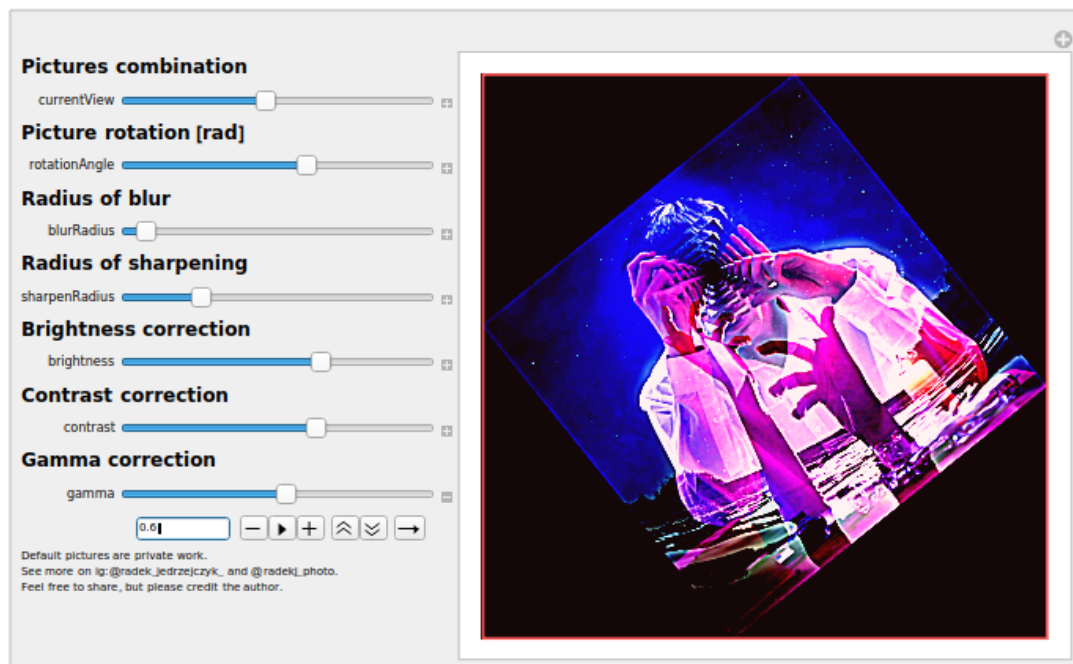


Figure 3: Default images after some edits.

**Enclosures:**

- File with the program (Jędrzejczyk\_Radosław\_proj\_9)