

# Sensory Robotics - image segmentation with depth image

## Goals:

With the help of Intel RealSense d435 camera system: segmentation of RGB images on the basis of their appropriate depth image-pairs.

## Short description of the exercise:

Software environment: MATLAB

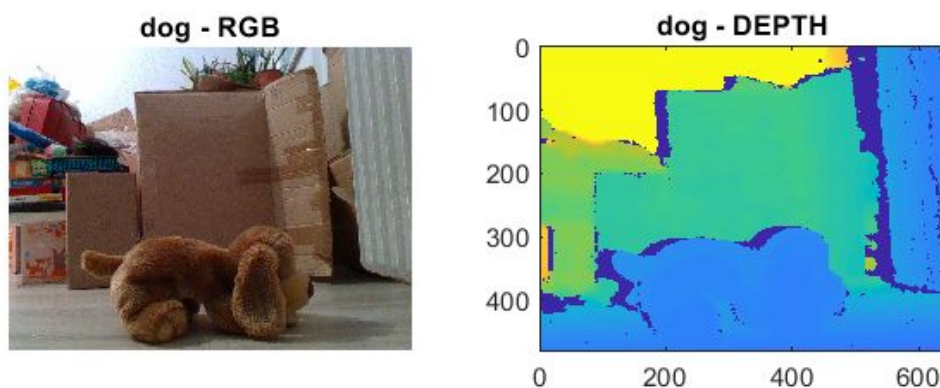
Tools to use during this lab:

- Intel RealSense d435 camera system.

There are multiple ways how depth cameras can work (even in the laboratory we have more types of them). A good comprehension of the types, please read it carefully:

<https://www.intelrealsense.com/beginners-guide-to-depth/>

The system is capable of registering/creating the RGB and depth image.



## Description of the measurement:

**If you can be present physically in the laboratory** - During the measurement, you have to produce two pairs of images:

- in one pair: it should capture an empty scene, in the farther third one person from your team should be stand,
- in the other pair: the same empty scene, but with a chair in the center of the image.

The task: combine the two RGB images on the basis of their depth images, in the way that the chair should hide a part of the standing person.

**During online education** - Two `.mat` files are given, containing different scenes (RGB+depth images):

- in the first case: a dog, closer to the camera;
- in the second case: an elephant, farther away from the camera.

The task is the same: please combine the two RGB images on the basis of the depth information.

### Available source-codes:

*Already given:*

- -

*Please prepare:*

- **`fuse_images.m`**: a script, this loads the archive files, and shows the images; please extend it with the fusion you are going to do.

### What and when to send:

*What:*

- the source file (`fuse_images.m`),
- your report.

Please include in the report your opinion about the measurement errors seen on the image, please try to make a more 'noise-less' combination (with standard image processing routines).

*Deadline:* indicated in moodle.

Thank you.

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