

3rd Assignment



This assignment is divided in two different parts: Stereo visualization and augmented reality. Think of their use for kids to play and learn with it.

Exercise C.1

Using the work you developed for the previous assignments, the museum with all its components, to which you should add the necessary modifications for displaying the scene in stereoscopy using both cardboard 20% and the anaglyph 20% approaches.

Exercise C.2

In a separate notebook you should develop an Augmented Reality application. For that you will open the webcam or a video file and process each image of the sequence to locate the markers, select marker with a given ID and do the pose estimation using the POSIT algorithm implementation given.

Choosing different 4 markers you will show on top of each of them a textured cube 10%, a cone 10%, a sphere 10%, the solar system 15%, and a bouncing cylinder 15% using one of the methods described in exercises [9.2](#) or [9.3](#).

C.1 Optional

This optional part is only valid if the previous parts are complete.

Exercise C.3

Add additional ARUCO markers for controlling the scene lighting (in place of the keystrokes of the previous assignment).

20% bonus

C.2 Mandatory

It is mandatory to develop this implementation totally based on a jupyter notebook using WebGL 1.0 with the respective vertex and fragment shaders. All the 3D primitives must be constructed by your own code, no external libraries are allowed for that.

C.3 Deliverable

You must submit a fully functional notebook to Inforestudante. The report may be included in the notebook in markdown cells.

C.4 Plagiarism

Remember that it is quite easy to detect plagiarism these days. If N groups present too similar code or parts of code, the classification will be divided by the number of copies.

C.5 Presentation and Discussion

All groups must present their works and be able to justify and explain every part of the code delivered, otherwise the classification will be zero.