

# Interactive Graphics

Lab Session of March 14th 2017

**Objective:** Understand and Experiment with transformations specifications in WebGL, use of buttons, menus and sliders

**Background:** knowledge of the theory behind the above topics, basic knowledge of HTML, Javascript and WebGL.

## Tasks:

1. Download from the Course Web Site the necessary files in the Resources/Resources/Lab Sessions section: IG20170314.zip
2. Unzip on the Desktop
3. Open the file Lab20170314\_1.html in a browser
4. Open the files Lab20170314\_1.html and Lab20170314\_1.js in a text editor (Notepad++ or similar)
5. Add a button that stops/starts the animation
6. Add a slider to control the angle of rotation (from 0 to 10 degrees)
7. Add a translation matrix and three sliders that control the x,y and z translation. Sliders should go from -1 to 1 with step 0.1
8. Add a scale matrix and three sliders sliders that control the x,y and z scaling. Sliders should go from 0 to 2 with step 0.1
9. Open the file Lab20170314\_2.html in a browser
10. Open the files Lab20170314\_2.html and Lab20170314\_2.js in a text editor (Notepad++ or similar)
11. Create a version of the file where the mouse motion is used to control the translation
12. Create a version of the file where the mouse motion is used to control the scaling

## References:

Course Web page	<a href="https://piazza.com/uniroma1.it/spring2017/1044398/home">https://piazza.com/uniroma1.it/spring2017/1044398/home</a>
JavaScript Tutorial	<a href="https://www.w3schools.com/js/default.asp">https://www.w3schools.com/js/default.asp</a>
HRML5 Tutorial	<a href="https://www.w3schools.com/html/default.asp">https://www.w3schools.com/html/default.asp</a>
WebGL Book Material	<a href="http://www.cs.unm.edu/~angel/BOOK/INTERACTIVE_COMPUTER_GRAPHICS/SEVENTH_EDITION/">http://www.cs.unm.edu/~angel/BOOK/INTERACTIVE_COMPUTER_GRAPHICS/SEVENTH_EDITION/</a>
WebGL Programming Guide	<a href="https://sites.google.com/site/webglbook/">https://sites.google.com/site/webglbook/</a>
WebGL official site	<a href="https://www.khronos.org/webgl/">https://www.khronos.org/webgl/</a>
WebGL 1.0 specifications	<a href="https://www.khronos.org/registry/webgl/specs/1.0/">https://www.khronos.org/registry/webgl/specs/1.0/</a>
GLSL specifications	<a href="https://khronos.org/registry/OpenGL/specs/gl/GLSLangSpec.4.50.pdf">https://khronos.org/registry/OpenGL/specs/gl/GLSLangSpec.4.50.pdf</a>