Interactive 3D in a talk

An example presentation, made with lhtml-site

Tutorial: Create slides with interactive 3D

Outline

The models of this talk are C++ programs (OpenGL 3.3), compiled to WebAssembly: each one runs in a frame of the slide, next to the text.

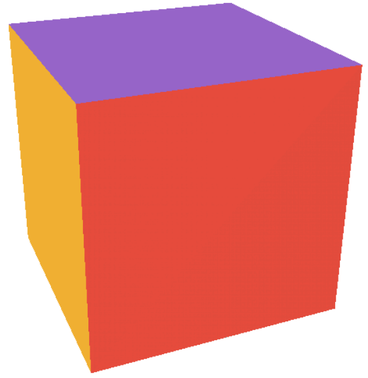
1. A model in the slide
2. Settings and controls
3. Values from the program

Click in a model to turn it with the mouse; the arrow keys still go to the next slide.

1. A model in the slide

A C++ program in the slide

A program in raw OpenGL 3.3, about 200 lines
Compiled to WebAssembly with Emscripten
Shown by the slide in a frame (`demo::`)
Set by the address of the frame: `?speed=0.2&tilt=25`



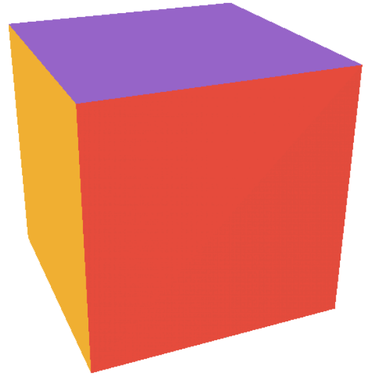
The same program, another preset

The same build as the previous slide

Another address: `?`

`speed=0.5&tilt=-30&background=dark`

One build serves all the slides that show this model

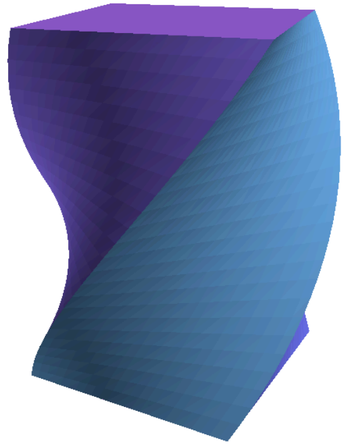


2. Settings and controls

A panel built from the program

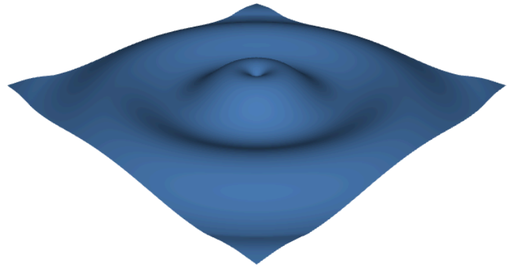
- The program declares its parameters, with their ranges
- The page of the demo builds the panel from them
- Each slider changes a uniform while the model turns

Address of the frame: `?`
`twist=0.8&controls=twist,hue,speed,light,reset`



Buttons in the slide

The buttons below are in the text of the slide, outside the frame.

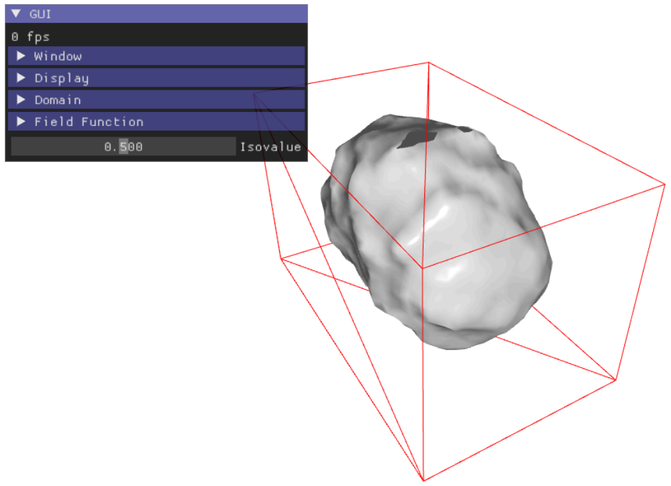


An ImGui window

Marching cubes on a scalar field, recomputed at each change

The interface is the ImGui window of the program

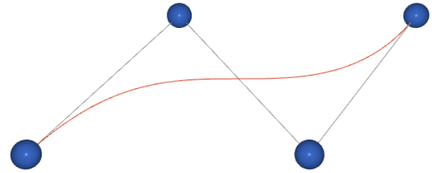
Its text is enlarged by the address: `?gui_scale=1.4`



3. Values from the program

The slide shows a value of the program

Drag a blue point: the program computes the length of the curve, and the slide shows it.



Conclusion

A 3D model in a slide is a web page in a frame
The address of the frame sets it, slide by slide
A panel, buttons in the slide or ImGui drive it during the talk
The program can send values back to the slide
In the PDF of the talk, an image of each model

The method, the code of these models and of this talk: the tutorial Create slides with interactive 3D.