



Introduction to Computer Graphics with WebGL

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Buttons and Menus



Adding a Button

- Let's add a button to control the rotation direction for our rotating cube
- In the render function we can use a var direction which is true or false to add or subtract a constant to the angle

```
var direction = true; // global initialization  
  
// in render()  
  
if(direction) theta += 0.1;  
else theta -= 0.1;
```



The Button

- In the HTML file

```
<button id="DirectionButton">Change Rotation Direction  
</button>
```

- Uses HTML `button` tag
- `id` gives an identifier we can use in JS file
- Text "Change Rotation Direction" displayed in button
- Clicking on button generates a `click` event
- Note we are using default style and could use CSS or jQuery to get a prettier button

Button Event Listener

- We still need to define the listener
 - no listener and the event occurs but is ignored
- Two forms for event listener in JS file

```
var myButton =  
document.getElementById("DirectionButton");  
  
myButton.addEventListener("click", function() {  
    direction = !direction;  
});
```

```
document.getElementById("DirectionButton").onclick =  
function() { direction = !direction; };
```

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onclick Variants

```
myButton.addEventListener("click", function() {  
    if (event.button == 0) { direction = !direction; }  
});
```

```
myButton.addEventListener("click", function() {  
    if (event.shiftKey == 0) { direction = !direction; }  
});
```

```
<button onclick="direction = !direction"></button>
```

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Controlling Rotation Speed

```
var delay = 100;  
  
function render()  
{  
    setTimeout(function() {  
        requestAnimationFrame(render);  
        gl.clear(gl.COLOR_BUFFER_BIT);  
        theta += (direction ? 0.1 : -0.1);  
        gl.uniform1f(thetaLoc, theta);  
        gl.drawArrays(gl.TRIANGLE_STRIP, 0, 4);  
    }, delay);  
}
```

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Menus

- Use the HTML `select` element
- Each entry in the menu is an `option` element with an integer `value` returned by click event

```
<select id="mymenu" size="3">
<option value="0">Toggle Rotation Direction</option>
<option value="1">Spin Faster</option>
<option value="2">Spin Slower</option>
</select>
```

Menu Listener

```
var m = document.getElementById( "mymenu" );
m.addEventListener( "click", function() {
    switch ( m.selectedIndex ) {
        case 0:
            direction = !direction;
            break;
        case 1:
            delay /= 2.0;
            break;
        case 2:
            delay *= 2.0;
            break;
    }
});
```
