

TALES FROM THE THIRD DIMENSION

3D rendering in Javascript

Matt Westcott

Overview

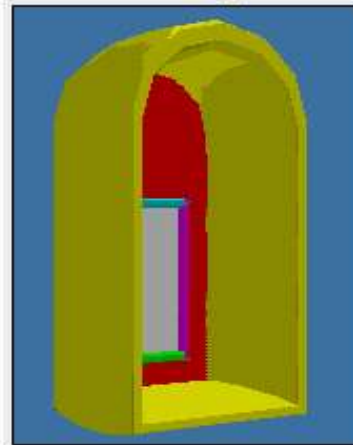
- The rise of graphical web technologies
- Shameless self-indulgence
- Some actual potentially-useful software
(for once)

VRML

Wednesday, March 6, 2002

Update by: [Rich "Lowtax" Kyanka](#)

■ Cubes, Spheres, and Cones! Oh My!



THE FUTURE!!!

One of the longest running jokes in Internet history revolves around VRML (an acronym for "Virtual Reality is Much Laughter"). In case you haven't heard of this idiotic language, and I truly hope you haven't, let me get you up to speed by presenting an alarmingly inaccurate historical description of VRML. VRML was initially created in the mid-90's to allow users to experience the utter joy of being in "cyberspace," which consisted of floating around gigantic neon cubes and cones. All the "cool" movies in those days featured people who would log in to their bitchin' 100 MHz Pentium 1 computers and enter some magical world where numbers are represented by dumb geometric shapes and nobody can find anything useful anywhere. The main point of going into virtual reality was to apparently teach your idiot children how to name shapes and colors. Despite heavy protests from people with over nine brain cells, VRML 1.0 was released in May of 1995, causing coders around the globe to immediately dismiss it and go back to playing "Rise of the Triad." Programmers who didn't have access to this game were forced by their bosses and college instructors to use VRML and create some kind of virtual reality world that not only took forever to

The graveyard of
ridiculous hacks

SVG

- A W3C standard
- Vector graphics as XML documents
- (mostly) supported by Firefox, Safari, Opera...
- Animation support

<canvas>

- Part of the WHATWG's HTML5 spec
- A means to draw simple shapes / images from Javascript
- Introduced by Safari / OS X

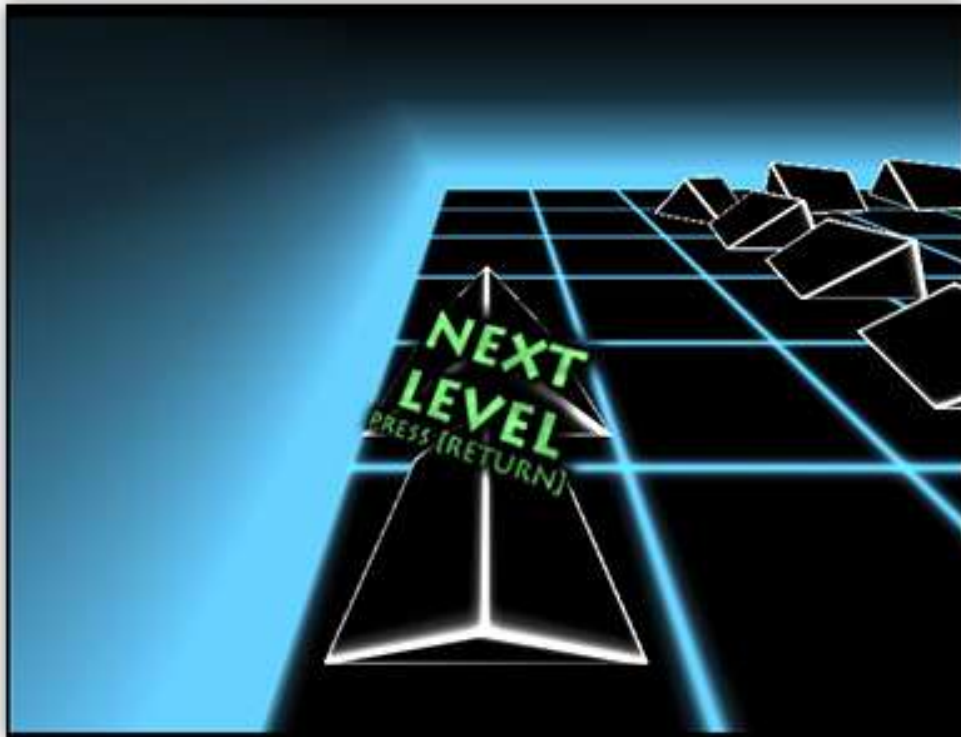
Why <canvas> sucks (allegedly)

- Java applets all over again
- Not structured as a document
- Doesn't really do anything SVG can't do
- But... it does the job

The future...

3D SNAKE

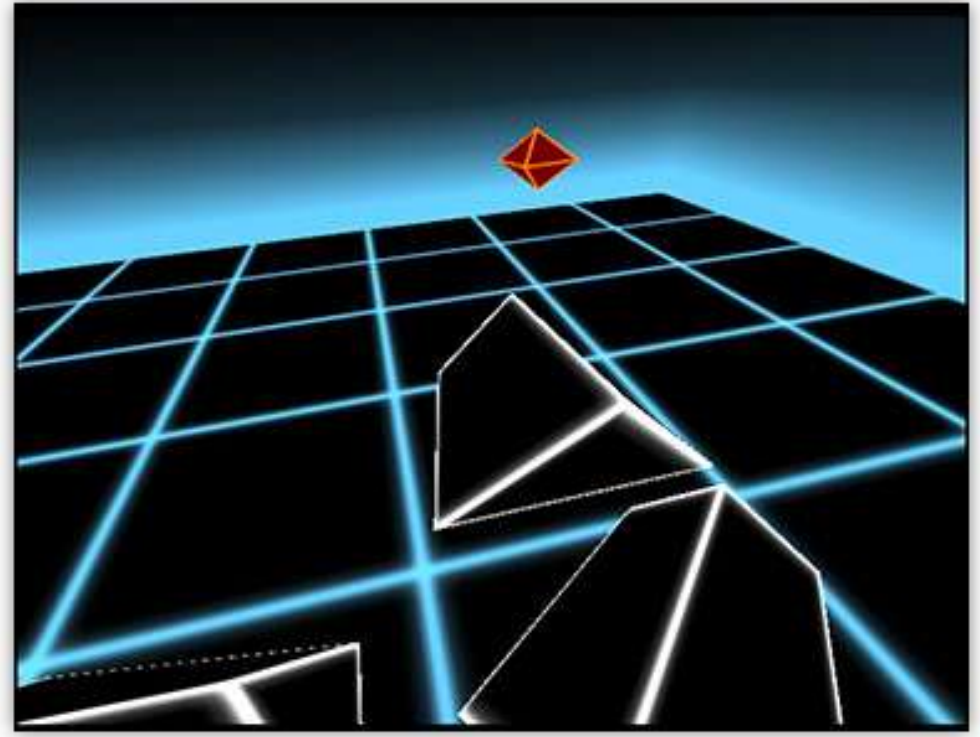
Turn with [LEFT]/[RIGHT]. Change the view with [UP]. Validate with [RETURN]. Stop with [ESC].



score: 392

3D SNAKE

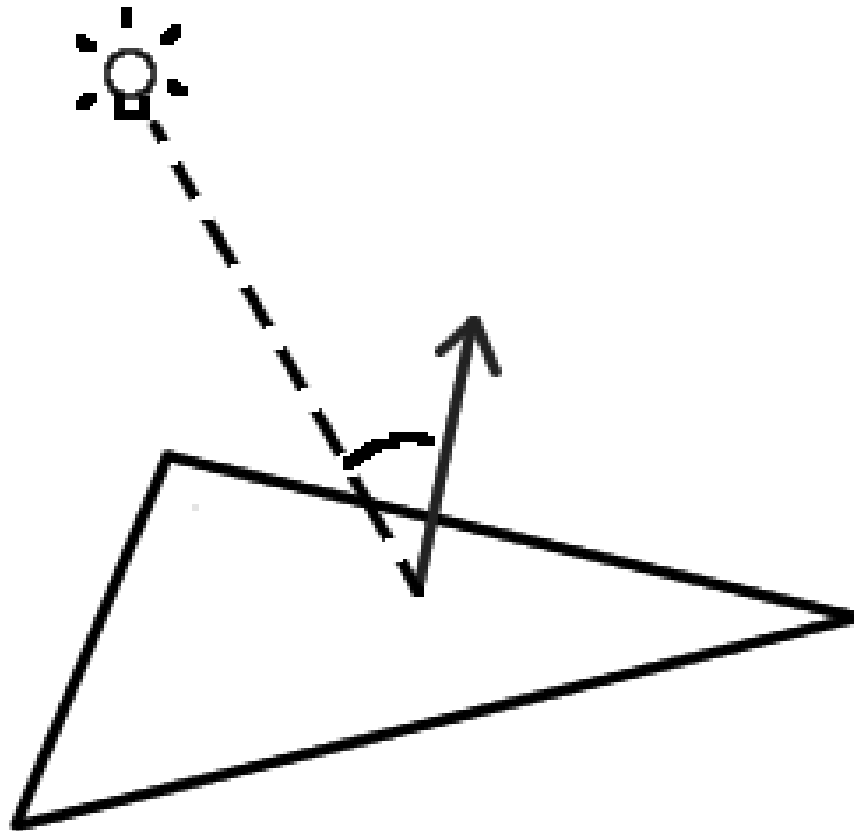
Turn with [LEFT]/[RIGHT]. Change the view with [UP]. Validate with [RETURN]. Stop with [ESC].



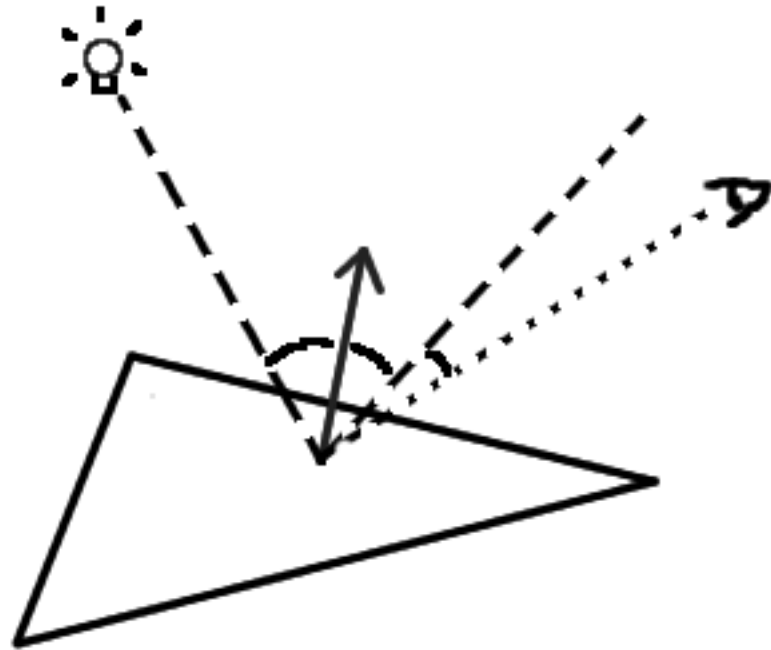
score: 73

Do-it-yourself 3D

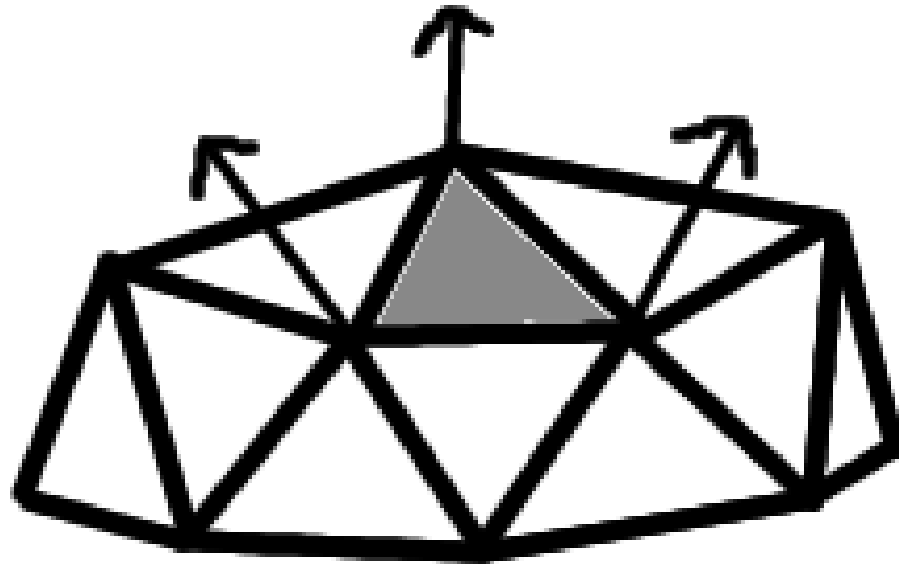
Lambertian illumination



Phong illumination



Curved surfaces



The Famous Web 2.0 Gradient Fill!

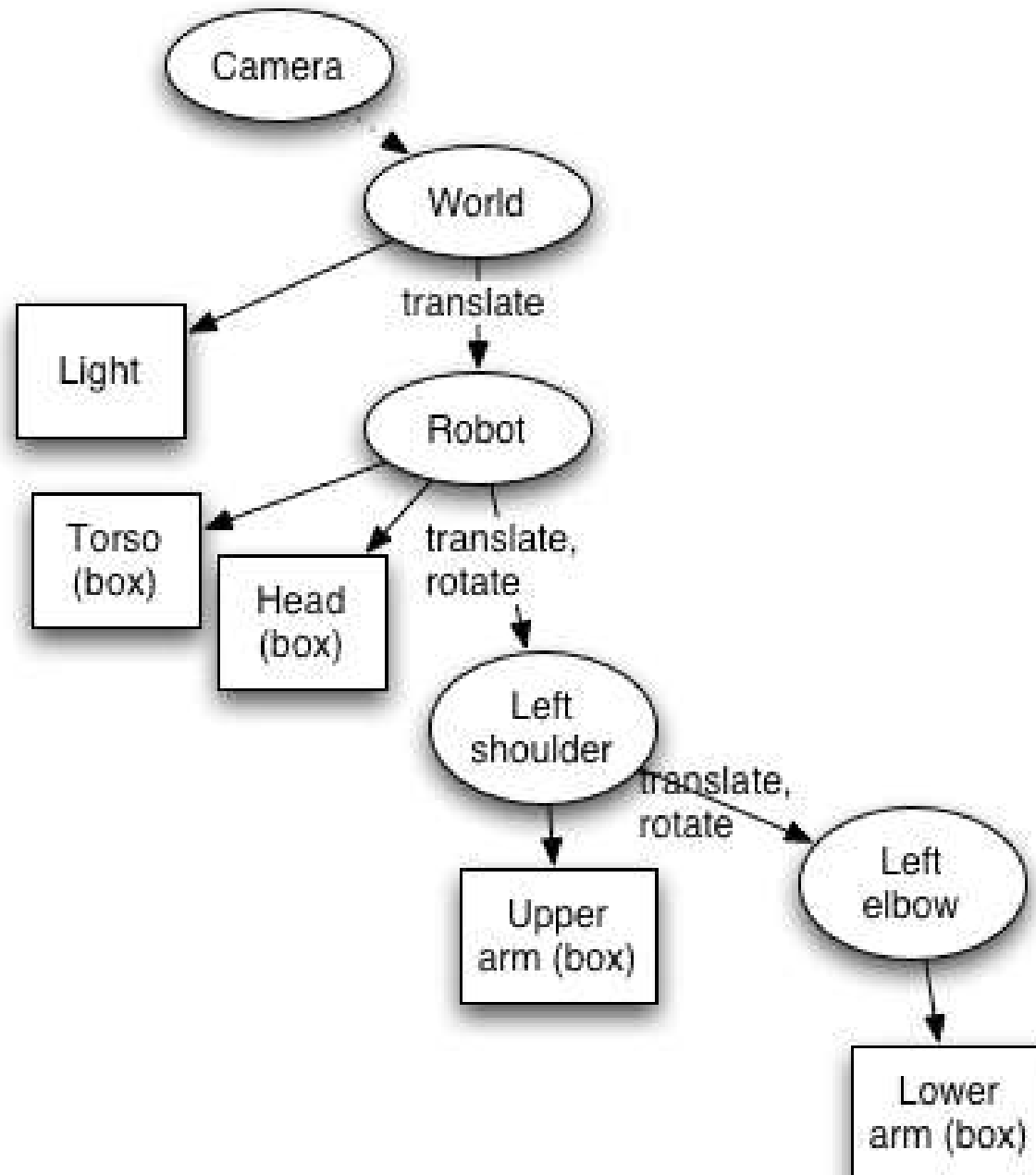
The demo scene

- Programmers and artists showing off, basically
- Realtime visuals
- Competitions
- Technical constraints
- Strange nicknames



Canvastastic

- 3D rendering engine, in a convenient Javascript library
- Supports movable camera and lights, Gouraud shading, various primitives...
- Documentation? What documentation?
- Loosely based on DOM API



Open questions

- A less silly name?
- Cross browser support?
- More effects?
- Real-world applications / mashups?

Links

- <http://matt.west.co.tt/>
- <http://www.wolf5k.com/>
- <http://whatwg.org/specs/web-apps/current-work/>
- <http://fuchsia-design.com/CanvaSVG/>
- <http://www.abrahamjoffe.com.au/ben/canvascape/>
- <http://demoscene.info/>
- <http://www.assembly.org/>
- <http://www.sundowndemoparty.org/>
- <http://excanvas.sourceforge.net/>