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Descrizione fisica	1 online resource (377 p.)
Collana	Learn by doing : less theory, more results
Altri autori (Persone)	JonesBrandon
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Soggetti	Computer graphics - Computer programs HTML (Document markup language) Internet programming JavaScript (Computer program language)
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Nota di contenuto	Cover; Copyright; Credits; About the Authors; Acknowledgement; About the Reviewers; www.PacktPub.com; Table of Contents; Preface; Chapter 1: Getting Started with WebGL; System requirements; What kind of rendering does WebGL offer?; Structure of a WebGL application; Creating an HTML5 canvas; Time for action - creating an HTML5 canvas; Defining a CSS style for the border; Understanding canvas attributes; What if the canvas is not supported?; Accessing a WebGL context; Time for action - accessing the WebGL context; WebGL is a state machine; Time for action - setting up WebGL context attributes Using the context to access the WebGL APILoading a 3D scene; Virtual car showroom; Time for action - visualizing a finished scene; Summary; Chapter 2: Rendering Geometry; Vertices and Indices; Overview of WebGL's rendering pipeline; Vertex Buffer Objects (VBOs); Vertex shader; Fragment shader; Framebuffer; Attributes, uniforms, and varyings; Rendering geometry in WebGL; Defining a geometry using JavaScript arrays; Creating WebGL buffers; Operations to manipulate WebGL buffers; Associating attributes to VBOs; Binding a VBO; Pointing

an attribute to the currently bound VBO

Enabling the attributeRendering; The drawArrays and drawElements functions; Putting everything together; Time for action - rendering a square; Rendering modes; Time for action - rendering modes; WebGL as a state machine: buffer manipulation; Time for action - enquiring on the state of buffers; Advanced geometry loading techniques: JavaScript Object Notation (JSON) and AJAX; Introduction to JSON - JavaScript Object Notation; Defining JSON-based 3D models; JSON encoding and decoding; Time for action - JSON encoding and decoding; Asynchronous loading with AJAX; Setting up a web server
Working around the web server requirementTime for action - loading a cone with AJAX + JSON; Summary; Chapter 3: Lights!; Lights, normals, and materials; Lights; Normals; Materials; Using lights, normals, and materials in the pipeline; Parallelism and the difference between attributes and uniforms; Shading methods and light reflection models; Shading/interpolation methods; Goraud interpolation; Phong interpolation; Light reflection models; Lambertian reflection model; Phong reflection model; ESSL-OpenGL ES Shading Language; Storage qualifier; Types; Vector components; Operators and functions
Vertex attributesUniforms; Varyings; Vertex shader; Fragment shader; Writing ESSL programs; Goraud shading with Lambertian reflections; Time for action - updating uniforms in real time; Goraud shading with Phong reflections; Time for action - Goraud shading; Phong shading; Time for action - Phong shading with Phong lighting; Back to WebGL; Creating a program; Initializing attributes and uniforms; Bridging the gap between WebGL and ESSL; Time for action - working on the wall; More on lights: positional lights; Time for action - positional lights in action; Nissan GTS example; Summary
Chapter 4: Camera

Sommario/riassunto

Become a master of 3D web programming in WebGL and JavaScript