Web3D made Easy

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What is `<model-viewer>`?

- Interactive 3D rendering with one line!
- Open-source web component
- Input: glTF (Khronos standard)
- Physically-Based Rendering (PBR)
- Wrapping Three.js wrapping WebGL & WebXR
- Partners include:
  - Shopify
  - NASA
  - Visible Body
Gateway to Augmented Reality

● Legacy:-launches native apps for AR
  ○ Quick Look on iOS
  ○ Scene Viewer on Android

● WebXR on Chrome Android with DOM Overlay
  ○ Stay in the browser for AR
  ○ Faster: No redownloading the model
  ○ Complete customization with HTML, CSS, JS
  ○ Runs same ARCore as native apps
  ○ Live demo of example video
DOM Customization is a Big Deal

● Easy UX
  ○ All HTML elements available
  ○ CSS for page-consistent styling
  ○ JS links the page to the 3D scene
  ○ Elements can align to a 3D position

● Consistency between 3D and AR
  ○ Decedent nodes all show up in WebXR
  ○ Scope CSS to the ar-status
  ○ Logic on the web, not in the model
  ○ Live demo of example video
<model-viewer> brings PBR to the most devices

- Broad compatibility
  - IE11
  - WebGL 1.0 fallback
  - Minimal extensions required

- Novel environment lighting strategy
  - Just-in-time prefiltering - faster than GPU upload
  - No floating-point texture extensions
  - Supports extreme HDR like the sun
  - Compares well to other renderers
  - Details and examples of the method

![Image of metal and non-metal roughness](image-url)
Rendering Performance

- Single shared WebGL context
  - Multiple elements share shaders & caches
  - Only renders when it needs to
  - No copy when only one element is visible

- Dynamic render scaling
  - Maintains frame rate by dropping resolution
  - Full resolution once it stops moving
  - Coming soon to WebXR!
<model-viewer> Lighthouse scores

- Lazy loading by default
  - Only 199 KB minzipped
  - [Defer model loading](#) - 93 mobile performance
  - [Defer library loading](#) to get 100
  - Seamless posters either way, all aspect ratios
  - Our [editor](#) creates posters and much more
Looking to the Future

- **glTF PBR Next extensions**
  - Realistic rendering for more materials
- **Expanded scene-graph API**
  - Multiple model placement
- **New WebXR APIs**
  - Viewport scaling
  - Lighting estimation
  - Depth estimation
modelviewer.dev

twitter.com/modelviewer

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Thanks!