Panel: Rendering Believable 3D Assets for E-Commerce

AWE Conference
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Panelists

Eric Chadwick
Senior 3D Technical Artist, DGG

Ashleigh Miller
Sr. Program Manager and 3D SME, Amazon

Dan Frith
3DC Chair and CCO, London Dynamics

Jane Rawnsley
SVP Creative, Avataar
Khronos Group for open source standards, including glTF
Weekly conference calls: glTF features, interop, extensions, workflow, tooling, tutorials ...
3D Commerce Deliverables

**Material Variants**
Efficient transmission of many e-commerce products

**Metadata**
Supports for XMP Extensible Metadata Platform ISO 16684-1 to hold consistent data for product discovery, dimensions, how a virtual product interacts with the physical world, defining variants, etc.

**PBR Materials**
Transmission Clearcoat Sheen Refraction Specular Color Color Attenuation Volumetric Properties

**Consistent Asset Creation**
Free guidelines for tools and product designers to create high-quality real-time 3D models for e-commerce

**KTX 2.0**
How to use KTX 2.0 supercompressed textures for minimized glTF download size at high quality

**Next Steps**
Iridescence, subsurface scattering, anisotropy, interactivity & behaviors

Open-source asset checker tool in design to guide creation and assess compliance of reliable e-commerce 3D assets

**3D Commerce Viewer Certification Program**
Certification to go beyond testing rendered pixels and achieve ecosystem consistency around tone mapping and display calibration

End User Experiences
On the Web and in Apps, Desktops and mobile

Retailer Web Storefronts

Non-Retailer Web use cases: Social, Ads, Search...

Brands / Manufacturers

Future Experiences: Web, Apps, Mobile, AR...

Viewers certified to accurately display 3D products
Consistent deployment in a wide variety of end-user experiences: Web, social media, ad platforms, apps, etc.
Panel Topics

- Setting Up a 3D Pipeline
- Realism in Interactive Rendering
- Real-Time vs. Photoreal Rendering
- Visual Consistency
- PBR Neutral Tonemapper
- Reusability & Scalability
- Future Outlook
- Q & A
Setting Up a 3D Pipeline

- 3D is giant confusing hurdle for most.
- Adoption of 3d is easy, but doing it well is hard.
- Key things we’ve learned.
- Great reference, accurate source.
Realism in Interactive Rendering

- The struggle is real! Going beyond “does it fit”
- Barriers to realism? AR lighting?
- Realism is about customer trust
Real-Time vs. Photoreal Rendering

- Are brands avoiding real-time to focus on rendering?
- Why is this happening? Comfort with known processes?
- What’s lost when real-time is off the table?
Visual Consistency

- What do we mean by “visual consistency”? 
- How does the visual consistency of an asset impact its effectiveness in an e-commerce context? 
- What are the current challenges to achieving it?
Visual Consistency - 3D Commerce Viewer Certification

Image: the same 3D chair displayed in four uncertified viewers (courtesy of Wayfair)

Consistent display of virtual products across multiple platforms increases consumer confidence and reduces returns
Visual Consistency - Render Fidelity Comparison Results

<model-viewer>
Render Fidelity Comparison Results
PBR Neutral Tonemapper

- Why was it created? What are the use cases?
- How does it differ from/complement existing tone mappers?
PBR Neutral Tonemapper

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Reusability & Scalability

- What does it mean for an asset to be “reusable”?
- High-poly “hero” assets, PBR at 4K minimum, runtime assets as hero assets?
- Large retailers and visual fidelity across thousands of products?
- What matters more at scale: fidelity or functionality?
Future Outlook

- **gltf extensions:**
  - Anisotropy
  - Clearcoat
  - Dispersion
  - Sheen
  - Transmission
  - Volume

- **How are AI tools impacting the development of 3D assets?**
  - What are the current use cases for creating assets using Gaussian splatting or NERF?
  - What kinds of results are currently possible using these techniques?
  - How much delta is there between what AI can achieve and a reusable, visually consistent 3D render?

- **Use cases:**
  - In what contexts can we currently achieve believable, reusable, visually consistent results?
  - Where do we we still face significant barriers and why (e.g. apparel)
Connect with Khronos at AWE

Meet Up with Khronos in Booth 510

3D Content Creation for Spatial Computing
Wednesday June 19, 11:00 AM

OpenXR’s Open-Source Pipeline for Accessible XR Development
Wednesday June 19, 11:30 AM PT

State of 3D Asset Interoperability using USD & glTF
Thursday June 20, 2:30 PM PT
These slides will be available on the Khronos Group website.

www.khronos.org/events

For more information on glTF and links to online resources, please visit

www.khronos.org/gltf