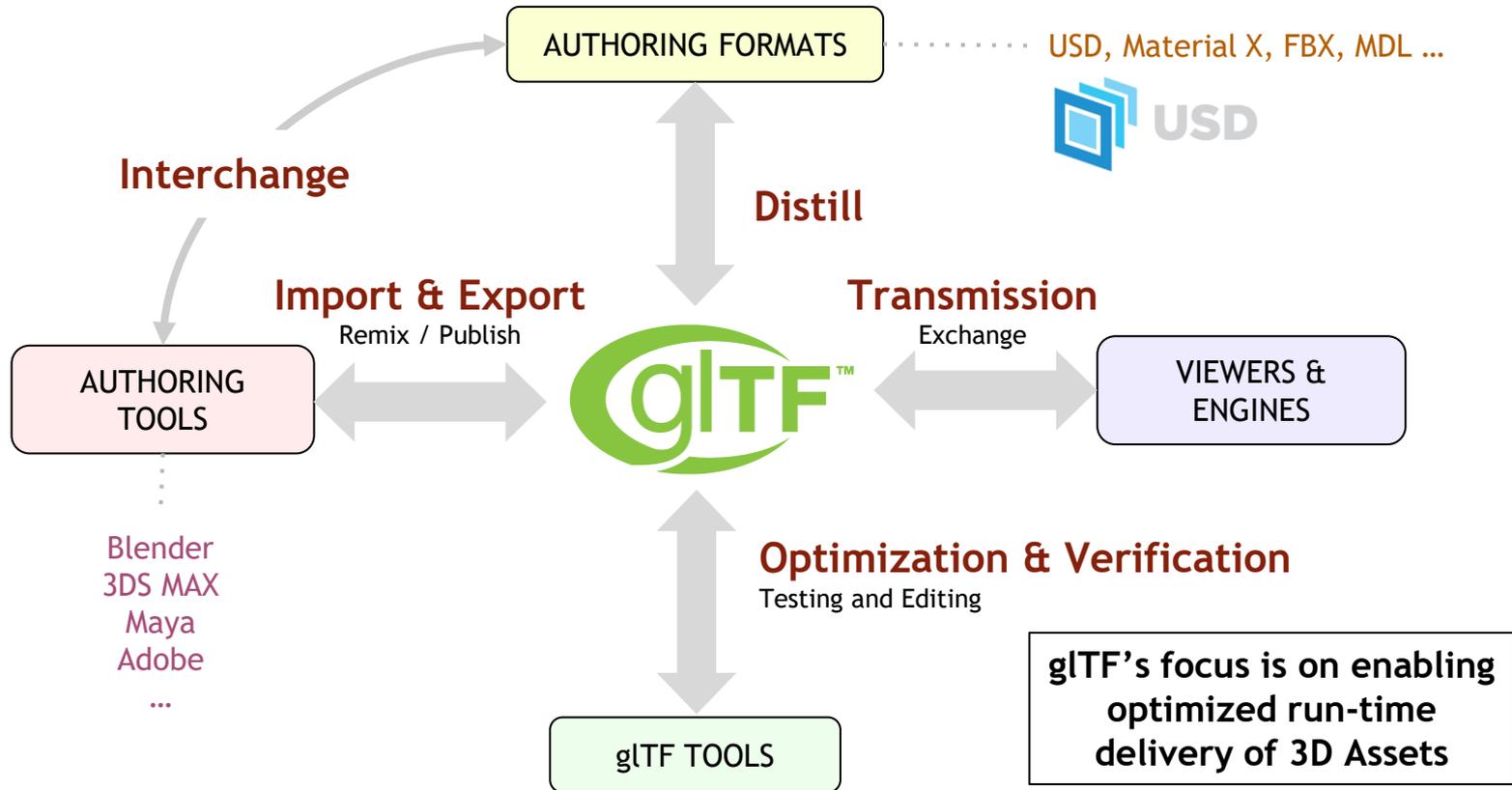




Intro to glTF - Current & Future

Alexey Medvedev
Meta

glTF - 3D Asset Transmission Format



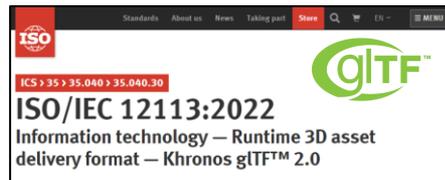
Increasingly Foundational for Other Standards



Customized interactive 3D avatar format based on glTF + extensions
(*.vrm extension*)



Streamlined streaming and rendering large-scale 3D geospatial datasets uses glTF + extensions
(*.b3dm and .i3dm extensions*)



glTF as an ISO standard solidifies global recognition and adoption as a 3D asset format



ISO/TS 32007 brings glTF 2.0 as a supported 3D asset into PDF



ISO/IEC 23090-14:2023
MPEG-I for immersive media experience uses glTF + extensions as its scene graph
(*.mp4 extension*)



ISO/IEC IS 19775-1:2023 (X3D)
MPEG-I for immersive media experience uses glTF + extensions as its scene graph
(*.x3d extension*)

Cross Standards Cooperation



KHRONOS
GROUP

Asset format to enable 3D content to be pervasively delivered and displayed on a wide diversity of native and web viewers, applications and engines



Metaverse
STANDARDS FORUM™

Cooperation between glTF and USD ecosystems is a significant industry benefit

ASWF / * ACADEMY
SOFTWARE
FOUNDATION

Multiple open-source projects including OpenPBR and MaterialX



Extensible framework and ecosystem for describing, composing, simulating, and collaboratively navigating and constructing 3D scenes

Metaverse Standards BOF
Presentation by glTF/USD Interoperability Working Group
Tuesday 11:30AM Room 710

glTF PBR Materials Roadmap

Incremental consolidation and meticulous specification of *proven and accepted industry practice*

Clearcoat



Volume



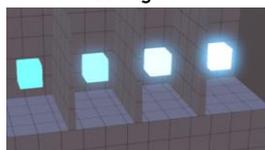
Sheen



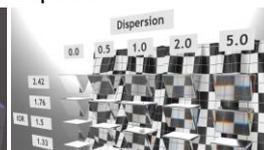
Index of Refraction



Emissive Strength



Dispersion



Metal / Roughness



Transmission



Specular



Iridescence



Anisotropy



Subsurface
In development

2017

2020

2021

2022

2023/4

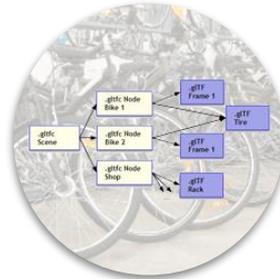
glTF Spatial Computing Roadmap



Interactivity



Physics



Complex Scenes

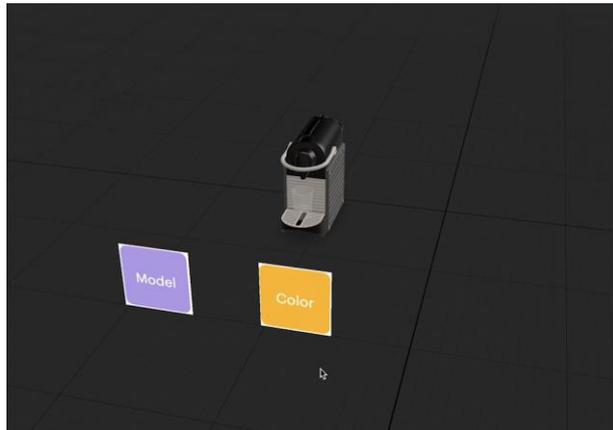


Audio

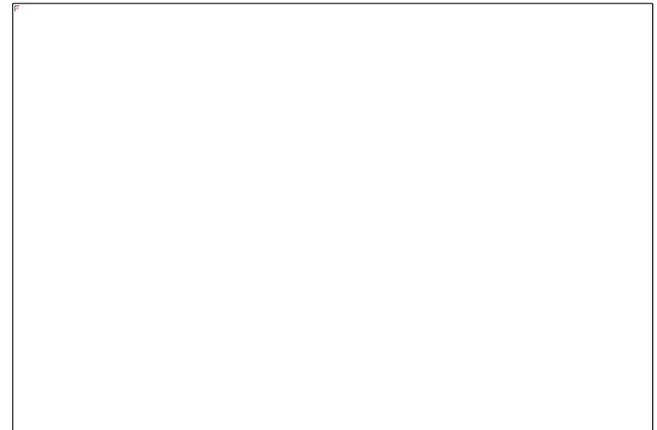
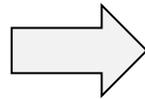


glTF Interactivity Extension

- Uses behavior graphs to add logic and behaviors to glTF assets
 - Interactive assets portable across eCommerce sites, applications, XR experiences etc.
 - Focus on safety, portability and ease of implementation
- Distillation of engine accepted practice
 - Unity (Visual Scripting), Unreal (Blueprints), Nvidia Omniverse (Action Graph)
- Invitation for Public Comments [issued!](#)
 - [Draft Specification](#) on GitHub | [Khronos webinar](#) on interactivity
 - Feedback on [GitHub pull request](#) | [glTF Interactivity Graph Authoring Tool](#) (WIP DCC React App)



glTF 2.0



glTF 2.0 with KHR_interactivity

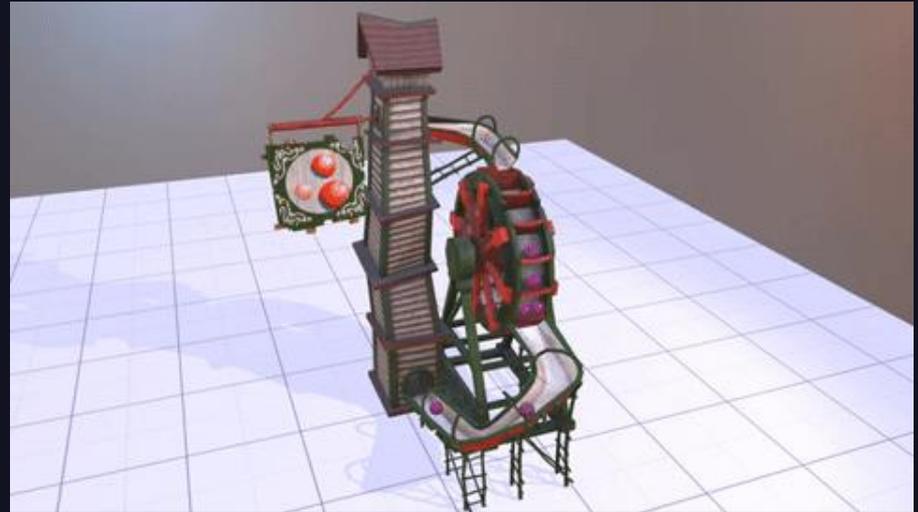
glTF Physics

- Express the physics properties of assets in a platform independent way
 - Provides procedural animation
 - Makes scenes more interesting, believable, and dynamic
- Enables scene understanding
 - Possible with render geometry, but much more efficient with physics
- Rigid Bodies
 - Collision geometry | Rigid bodies
 - Motions | Materials
 - Joints | Filters

Distillation of widely adopted physics engines practices

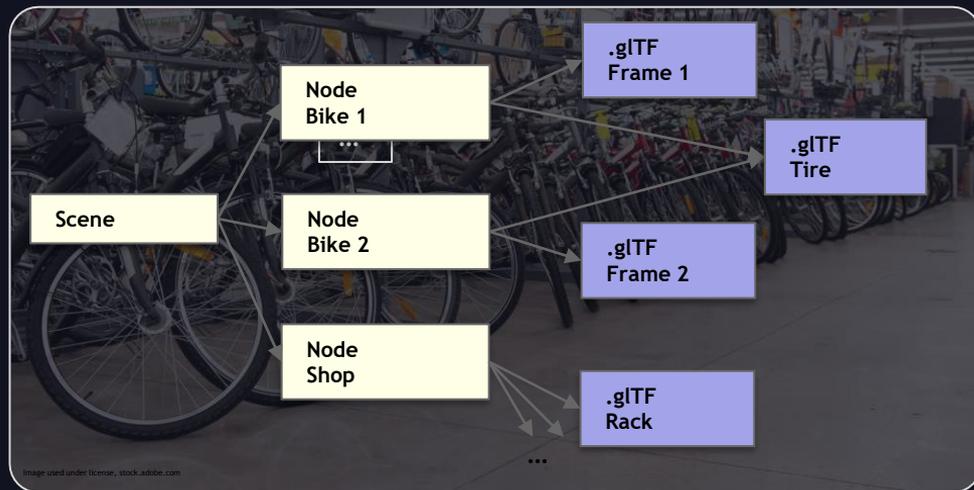


[Specification](#)
feedback welcome!



glTFX : glTF eXternal References

- Meet user requirement to reference multiple glTF assets
 - Complex scenes, Level-of-Detail, streaming, smart loading, scene change...
- Adds a new glTF file type (glTFX)
 - Contains eXternal reference to glTF files
 - New file does not specify any meshes, animations, materials, etc. directly



Join in the ongoing discussions at
<https://github.com/KhronosGroup/glTF-External-Reference/tree/main/explainers>

Khronos 3D Commerce



Making 3D Pervasive - in the Real World

Build Once, Use Everywhere

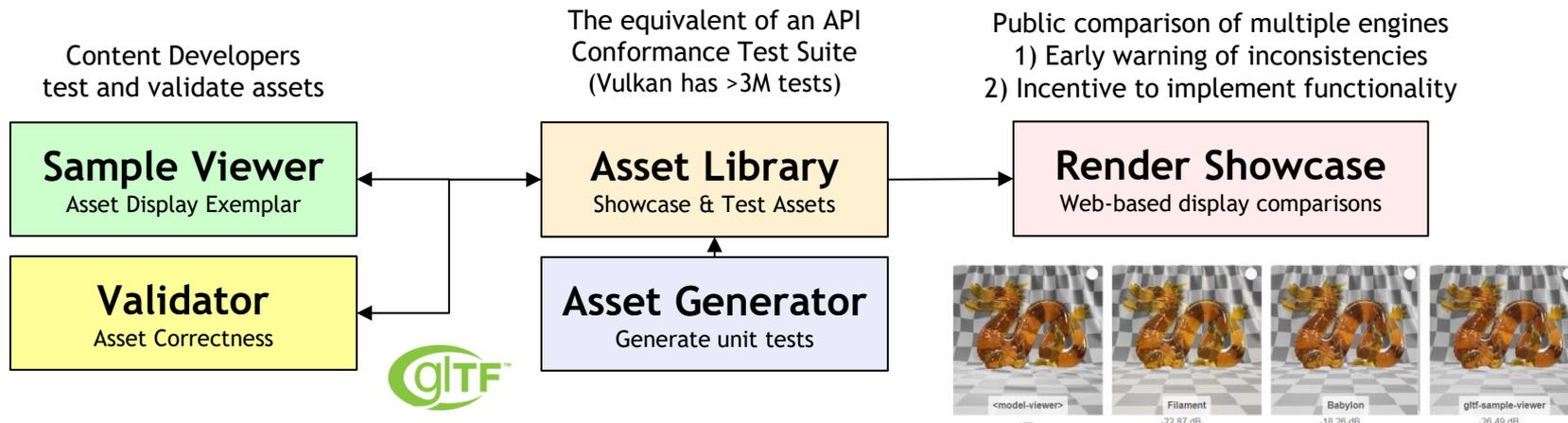
Developing tools and techniques for 3D assets to be reliably and consistently used and displayed across diverse platforms and engines

Multiple Projects Underway

Render Showcase - evolve and expand [Render Fidelity Site](#)

Tone Mapping (PBR Neutral), exposure and lighting

Apparel: Skeletal & Facial Anchoring, Virtual Try-On, Stitching / detailing, Simulation



glTF 2024 Development Roadmap

