Staging glTF™ to the Metaverse

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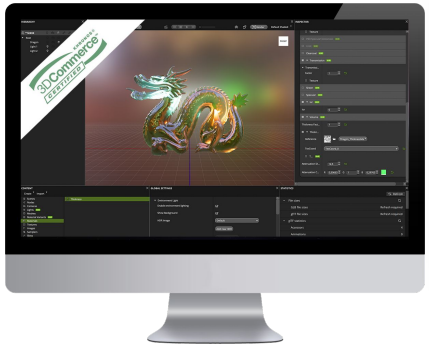
Agenda

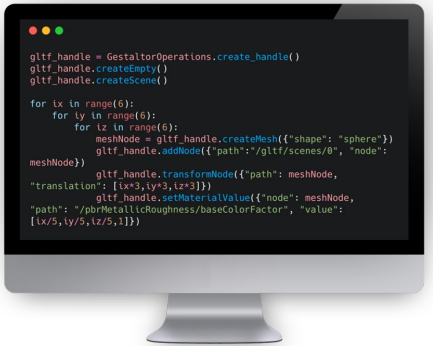
- Short introduction
- Road to the Metaverse
- Why glTF staging?
- glTF staging challenges
- glTF software from UX3D

Short introduction

- **Norbert Nopper**
  - Co-founder and managing director at UX3D
  - Software Engineer by heart
    - Focusing on GPU software development

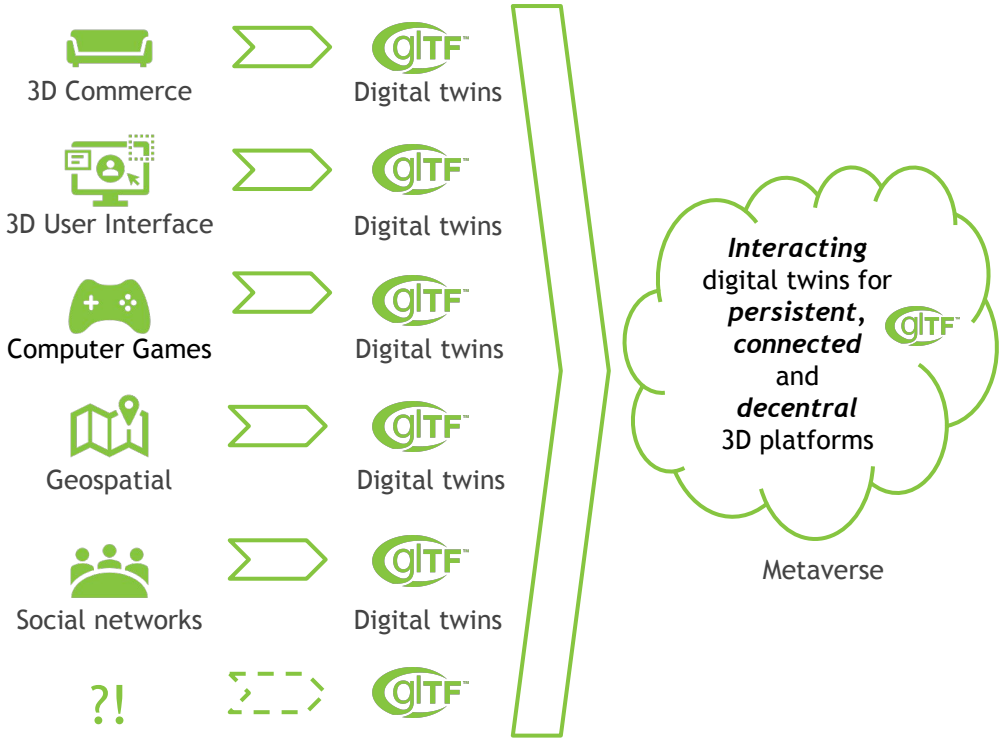
- **UX3D**
  - Projects
    - glTF and interactive 3D related
  - Product line for glTF
    - Gestaltor Desktop
    - Gestaltor Automated
    - …





Road to the Metaverse

- Future of glTF is driven by many use cases and industries
- Different use cases require glTF extension for the digital twins
- Today, more than 100 ratified, draft and experimental glTF extensions
- Goal is to consolidate glTF extensions for an open Metaverse



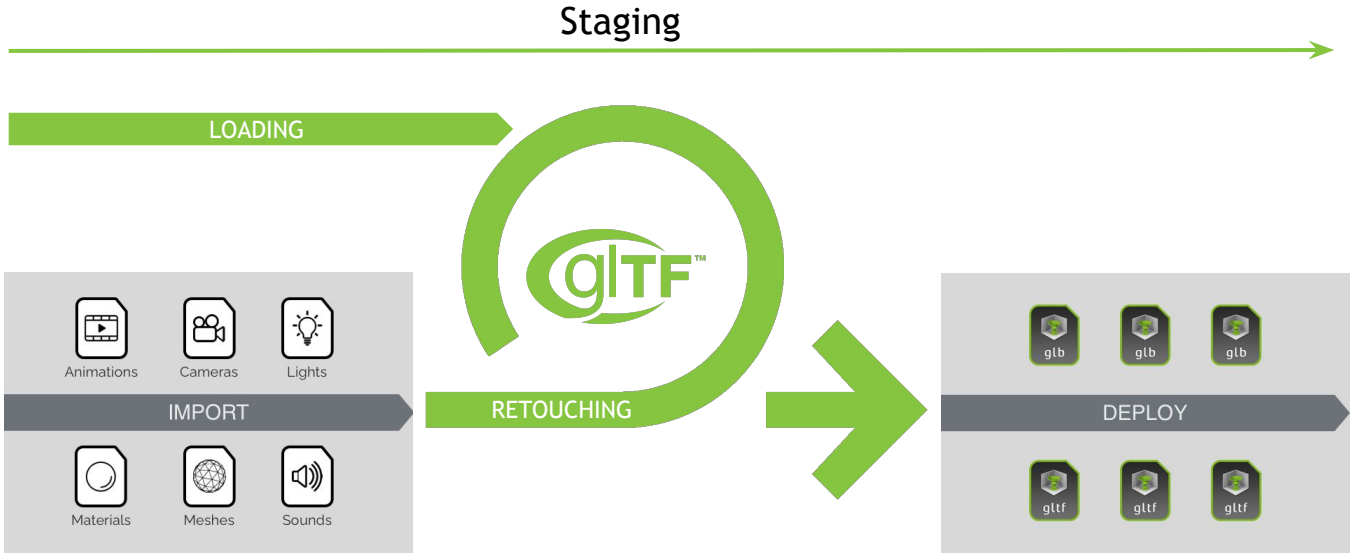
Why glTF staging?

- **In a perfect world, a photo would be just published - but it is retouched**
- **Same in 3D for final delivery**
- **Advantages when using glTF**
  - f(x) ≈ glTF where x is any 3D file format (except glTF)
    - Repair and cleanup
  - WYSIWYG
    - Modify glTF parameters
    - Compose
  - f(glTF) ≈ x where x is any 3D file format (...)
    - Potential loss of optimizations in glTF
  - glTF library
    - Merging and splitting
  - …

Captured 2D image | Retouching | Photoshopped

glTF staging challenges

- Import to glTF or loading glTF
- Retouching
- Deploying glTF



glTF staging challenges - Import and Loading

- **Different “origins”**
  - Scanned or authored 3D data
- **Many different 3D, industry and proprietary formats**
  - Meta information and “scenes”
  - Materials and geometry splitted
  - …
- **Data security**
  - Don’t export too good - danger of IP / creation of plagiat
- **3D format size**
  - Distill e.g. remove or adapt subdivision surface
  - Optimize geometry and images
- …

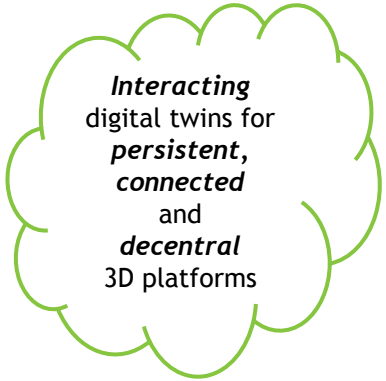
glTF staging challenges - Retouching

- **Repair and cleanup glTF**
- **Modify glTF parameters**
  - WYSIWYG tweaks
  - Adding extensions
- **Merging and splitting**
  - Different input sources (3D, Metadata)
  - Create glTF libraries
- **Compose several glTF**
  - Several glTF become one glTF
- **Optimize**
  - Image storage and compression format
  - Eliminate/merge duplicates
  - Execution time e.g. traversing the node tree
  - Prepare blending order

glTF staging challenges - Deploy

- **Adapt to tool, 3D platform and engine**
  - Babylon.js
  - CGI Studio
  - Filament
  - Godot
  - Kanzi Studio
  - Ramses
  - three.js
  - Unity
  - Unreal Engine
  - ?!
- **Adapt for the unknown output target in the Metaverse**

- **Adapt to output / render hardware**
  - Embedded
  - Mobile
  - XR
  - Desktop
  - Workstation
  - Cloud
  - ?!



glTF software from UX3D

- **Gestaltor Desktop - glTF editor and stager**
  - 1.0, stable and for production
    https://gestaltor.download/
  - 2.0, pre-alpha and for testing - Please send us feedback to support@ux3d.io
    https://gestaltor.download/Nightly

- **Gestaltor Automated**
  - Stable and for production - Any questions sales@ux3d.io
    https://ux3d.io/gestaltor-automated

- **Demo time**