

# Sources of GLB and GLTF 3D models - v2

MaFEA – Making Future Education Accessible  
PR2 – Guiding successful adoption



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## Sources of GLB and GLTF 3D models - v2

This document first provides an overview of different ways to find 3D models, but focuses only on two types of 3D models, as these were the only ones used in the MaFEA project:

- .GLB -filetype.
- .GLTF -filetype.

In the MaFEA project, the tools that are being researched can utilize 3D models inside their content. However not all 3D model types are supported, and this has caused issues finding suitable 3D models at zero or low cost. Below is more information, gathered by MaFEA project members, on where to find or make suitable 3D models.

We hope that this information will expedite the finding of 3D models for other teachers.

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### Different ways to get 3D models

- Download free 3D models.
  - This is the easiest way to find 3D models, but it can be difficult to find 3D models that are subject appropriate, free, and in the GLB or GLTF format. This document contains a list of websites to get you started.
- Purchase 3D models.
  - If a payment option is available to you, the same websites that offer free 3D models can offer you many more options.
- Convert other 3D model types to GLB and GLTF.
  - There are dozens of other 3D model types. Some of them can be converted into GLB or GLTF. Conversion is not always successful, so success will only be known after trying.
- Convert 2D Images into 3D models.
  - Some tools can convert 2D images such as logos into simple 3D models. Often these 3D models will need converting into GLB or GLTF.
- Scan a real world object.
  - There are software that allow using a smartdevice (phone, tablet) or dedicated scanning device to scan a real world object into a GLB or GLTF format 3D model.
- Design your own 3D models.
  - Making 3D models from scratch is an option, but note that the skills requirements are very high. You might also consider [hiring an expert](#) to do it for you.



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### What are GLB 3D model files

“GLB is a 3D file format that’s used in Virtual Reality (VR), Augmented Reality (AR), games, and web applications because it supports motion and animation.

Another advantage of the format is its small size and fast load times.

A GLB file will generally be smaller (approximately 33 percent) than a GLTF file and its supporting files. It’s also easier to upload a single file rather than two or three.

Many developers find it easier to edit the objects and senses in the GLTF format and then convert it to GLB to deliver the file.”

Source: [Everything You Need to Know About Using GLB Files](#)

GLB 3D models are supported in the following MaFEA tools:

- Hololens Dynamics Guides.
- ThingLink.
- Zappar.

### What are GLTF 3D model files

“GL Transmission Format (GLTF) is an open-source and royalty-free 3D file that supports static models, animation, and moving scenes. GLTF is used in games, native web applications, AR, VR, and 3D ads.

You can also embed GLTF files in documents like Microsoft Word or PowerPoint files.

With GLTF, some data is stored in external files, like the model’s textures (which will be an image like JPEG or PNG), shaders (GLSL), or geometry and animation data (BIN).” This means that using GLTF often requires multiple files.

Source: [Everything You Need to Know About Using GLTF Files](#)

GLTF 3D models are supported in the following MaFEA tools:

- Supported by Hololens.
- Supported by Zappar.



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### Websites to download GLB 3D models

It may also be useful to make a direct google search for the 3D models you want. E.g. “hospital bed GLB”.

1. 3dexport.com
  - [https://3dexport.com/free-search/keywords\(glb\)](https://3dexport.com/free-search/keywords(glb))
  - Very few free GLB files available.
  - Requires a free account.
  - Downloading a GLB model always gives a zip folder. Unzip the zip folder to find the GLB file.
2. 3dmdb.com
  - <https://3dmdb.com/en/3d-models/GLB/?&free>
  - All results link to other 3D model sites.
3. Cgtrader.com
  - [https://www.cgtrader.com/3d-models?file\\_types\[\]=117&free=1](https://www.cgtrader.com/3d-models?file_types[]=117&free=1)
  - Requires a free account.
  - Every download forces you to wait 20 seconds.
4. Downloadfree3d.com
  - <https://downloadfree3d.com/file-format/GLB/>
  - Does NOT require a free account.
  - Downloading a GLB model always gives a zip folder. Unzip the zip folder and look in the contained “source”-folder to find the GLB file.
5. Free3d.com
  - <https://free3d.com/3d-models/GLB>
  - No free GLB files found (5.2022).
6. Grabcad.com
  - <https://grabcad.com/library?query=gltf>
  - Requires a free account.
  - Downloading a 3D model always gives a zip folder containing all available file types. Unzip the zip folder to find the GLB file.
7. Sketchfab.com
  - <https://sketchfab.com/tags/GLB>
  - Requires a free account.
  - Sometimes gives “incorrect” results of glTF files.
  - Downloading a GLB model always gives a zip folder. Unzip the zip folder and look in the contained “source”-folder to find the GLB file.
8. Thangs.com
  - <https://thangs.com/search/.glb/?scope=all>
  - Requires a free account.
  - Sometimes links to external sites that host the 3D models.
9. Turbosquid.com
  - <https://www.turbosquid.com/Search/3D-Models/free/GLB>
  - No free GLB files found (5.2022).



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### Websites to download GLTF 3D models

It may also be useful to google search for the 3D models you want. E.g. “hospital bed GLTF”.

1. 3dexport.com
  - a. <https://3dexport.com/free-search/keywords/gltf>
  - b. Very few free GLTF files available.
  - c. Requires a free account.
  - d. Downloading a GLTF model always gives a zip folder. Unzip the zip folder to find the GLB file.
2. 3dmdb.com
  - a. <https://3dmdb.com/en/3d-models/gltf/?&free>
  - b. All results link to other 3D model sites.
3. Cgtrader.com
  - a. [https://www.cgtrader.com/3d-models?file\\_types\[\]=117&free=1](https://www.cgtrader.com/3d-models?file_types[]=117&free=1)
  - b. Requires a free account.
  - c. Every download forces you to wait 20 seconds.
4. Downloadfree3d.com
  - a. <https://downloadfree3d.com/file-format/gltf/>
  - b. Does NOT require a free account.
  - c. Downloading a GLTF model always gives a zip folder. Unzip the zip folder and look in the contained “source”-folder to find the GLTF file.
5. Free3d.com
  - a. <https://free3d.com/3d-models/gltf>
  - b. No free GLTF files found (5.2022).
6. Grabcad.com
  - a. <https://grabcad.com/library?query=gltf>
  - b. Requires a free account.
  - c. Downloading a 3D model always gives a zip folder containing all available file types. Unzip the zip folder to find the GLB file.
7. Sketchfab.com
  - a. <https://sketchfab.com/tags/gltf>
  - b. Requires a free account.
  - c. Contains many animated GLTF files also.
  - d. Downloading a GLTF model always gives a zip folder.
8. Thangs.com
  - a. <https://thangs.com/search/gltf/?scope=all>
  - b. Requires a free account.
  - c. Sometimes links to external sites that host the 3D models.
9. Turbosquid.com
  - a. <https://www.turbosquid.com/Search/3D-Models/free/gltf>



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### Tools to convert other 3D model formats into GLB 3D models

1. Microsoft Paint3D
  - a. [3D in Windows 10 - Microsoft Support](#)
  - b. Free and installed on all Windows 10 computers already.
  - c. A very simple user interface.
  - d. Does not support every 3D model type
2. Blender
  - a. [blender.org - Home of the Blender project](http://blender.org)
  - b. Open source and free to install.
  - c. Professional level software, requires a high skill level.
  - d. Supports almost every 3D model type.
3. Aspose
  - a. [Convert any 3D formats online \(aspose.app\)](#)
  - b. A free website-based tool.
  - c. Success varies greatly.

### Tools to convert other 3D model formats into GLTF 3D models

1. Blender
  - a. [blender.org - Home of the Blender project](http://blender.org)
  - b. Open source and free to install.
  - c. Professional level software, requires a high skill level.
  - d. Supports almost every 3D model type.
2. Waiting for you to add your expertise here!



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### Tools to convert 2D Images into GLB 3D models

It is possible to create a 3D model from a 2D image. Note that most tools will not be able to provide a GLB model, and the results must be converted.

For best results, use an image that contains no background or unnecessary content, only that which should be in the final 3D model.

1. MakeSweet
  - a. <https://makesweet.com/logo/>
  - b. A free website-based tool.
  - c. Offers some styling.
  - d. Offers a blender file for further editing in the Blender tool.
2. Selva3D
  - a. [Selva3D - Transform images into 3D models online](#)
  - b. A website-based tool.
  - c. Requires a free account.
  - d. Low Quality 3D models are free.
  - e. High Quality 3D models are paid.
3. Aspose
  - a. <https://products.aspose.app/3d/2d-to-pointcloud>
  - b. A free website-based tool.
  - c. Success varies greatly.

### Tools to convert 2D Images into GLTF 3D models

It is possible to create a 3D model from a 2D image. Note that most tools will not be able to provide a GLTF model, and the results must be converted.

For best results, use an image that contains no background or unnecessary content, only that which should be in the final 3D model.

1. Waiting for you to add your expertise here!





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### Tools to scan real world objects into GLB 3D models

The most commonly available tool is a smartphone, and the most available method is “photogrammetry” - the process of turning photos or videos into a 3D object. Another method is to use a [LiDAR sensor](#) but this is only available on a select number of smart phones.

Regardless of which method your smartphone can take advantage of, an app is required to complete the process. Below is a list of the smart phone apps tested in the MaFEA project. More options can be searched for online. E.g. [The Best 3D Scanner Apps of 2022 \(iPhone & Android\)](#)

A “studio” environment with good lighting and a white backgrounds will help to get best results.

Other tools include dedicated 3D scanning devices which were not within the scope of the MaFEA project. E.g. [Best 3D Scanners \(2022\): In Every Use & Price Range](#)

1. Trnio
  - a. [Trnio 3D Scanner Tutorials](#)
  - b. Available for Apple devices.
  - c. Costs about 5€.
  - d. Contains a cropping tool for removing backgrounds.
2. Trnio+
  - a. [Trnio 3D Scanner Tutorials](#)
  - b. Available for LiDAR enabled Apple devices.
  - c. The App is free but a subscription is required.
  - d. Contains a cropping tool for removing backgrounds.
3. Scaniverse
  - a. [Scaniverse - 3D Scanner with LiDAR for iPhone and iPad](#)
  - b. Available for Apple, Android and LiDAR enabled Apple devices
  - c. The App is free.
  - d. Contains a cropping tool for removing backgrounds.

### Tools to scan real world objects into GLTF 3D models

1. Polycam
  - a. [Polycam - LiDAR & 3D Scanner for iPhone & Android](#)
  - b. Available for Apple and Android devices.
  - c. The App is free with 5 scans. A subscription is required for more scans.
  - d. Contains a cropping tool.
2. Trnio
  - a. [Trnio 3D Scanner Tutorials](#)
  - b. Available for Apple devices.
  - c. Costs about 5€.
  - d. Contains an cropping tool for removing backgrounds.
3. Trnio+
  - a. [Trnio 3D Scanner Tutorials](#)



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- b. LiDAR enabled Apple devices.
- c. The App is free but a subscription is required.
- d. Contains a cropping tool for removing backgrounds.



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## MaFEA – Making Future Education Accessible

### Tools to design your own GLB 3D models

1. Blender
  - a. [blender.org - Home of the Blender project](http://blender.org)
  - b. Open source and free to install.
  - c. Professional level software, requires a high skill level.
  - d. Supports almost every 3D model type.

### Tools to design your own GLTF 3D models

2. Blender
  - a. [blender.org - Home of the Blender project](http://blender.org)
  - b. Open source and free to install.
  - c. Professional level software, requires a high skill level.
  - d. Supports almost every 3D model type.
3. Tinkercad
  - a. [Tinkercad | From mind to design in minutes](#)
  - b. Requires a free account.
  - c. A web-based tool. No installation required.
  - d. Manipulate a wide range of basic and complicated shapes to make your 3D model.



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### In the future: Using artificial intelligence to generate 3D models

There are already many breakthroughs in “generative AI”, giving artificial intelligence some text descriptions to create images, videos, audio, larger text and also code, so it would be logical to assume that 3D models could also be created by simply typing details of what 3D model is desired.

Currently there do not seem to be any reliable services that offer AI 3D model generation, but at the time of publication, there is 1 beta tool, and there is research to be found for the following:

1. Usable beta: [Shap-E](#)
2. [DreamFusion](#)
3. [CLIP-Mesh](#)
4. [GET3D](#)