**README**

**Overview**

The dataset is not applicable to advancing AI technologies. The shared dataset of 3D CAD files and technical documents, accessed securely via PLM and visualized through XR applications over 5G, has enabled a fast, collaborative, and effective design environment. Leveraging 5G infrastructure ensures simultaneous data transfer and high responsiveness, which is key to improving the overall user experience and advancing real-time design workflows.

A computer screen shot of a refrigerator

Description automatically generated

**Dataset Contents/Dataset Description**

This dataset is collected to visualize 3D designs using XR technology on a 5G network infrastructure. Designers can quickly access product 3D design data and technical specifications from the Product Lifecycle Management (PLM) system and perform real-time work on the designs. This dataset will support performance testing, algorithm optimization, and network design tasks for 5G XR applications.

Computer aided design (CAD) data is converted to universal and optimized JT data for the VR system. These data are used throughout the product lifecycle with 2D and 3D visualizations.

This dataset inclueds;

* Visual/data access speed for the VR system
* Conversion time to different formats
* Visualization quality in the VR environment
* User interactions and success rates

Jupiter Tessellation (JT) is an efficient, industry-focused, flexible 3D data format developed by Siemens PLM Software, ISO standardized.

X\_T files are 3D product part models created with the Parasolid solid modeling kernel.

STEP (STP) files contain standard 3D product models used in CAD and engineering.

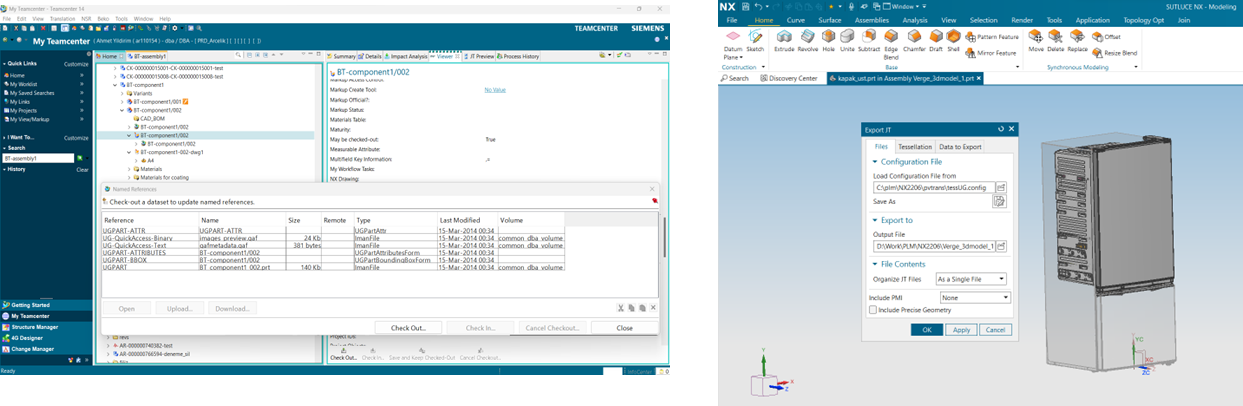
Extensible Markup Language (XML) is used for encoding documents in a format that is both human-readable and machine-readable.

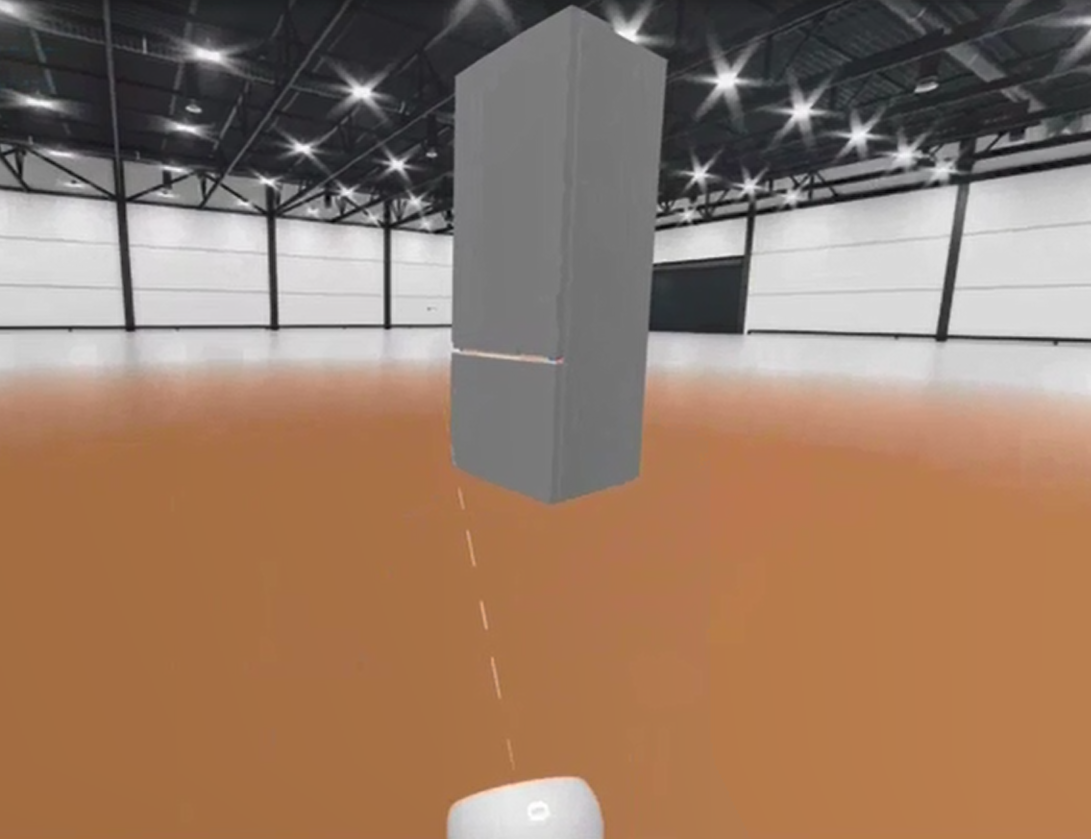
PDF is a format for presenting documents independent of application software, hardware, and operating systems.

3D design, Virtual Reality, PLM, 5G network

**Getting Started**

The dataset is provided in .jt format, so no special software or prerequisites are required to access or use it.





**Download & Usage**

git clone [https://github.com/VERGE-PROJECT/3D-Design-Dataset](https://safelinks.arcelik.com/fmlurlsvc/?fewReq=:B:JV07MDQzOyd3PDMvMSdoZTwxMDsxMCdyaGZvYHV0c2Q8Mjk4NmM2Y2c0MDMxMTk1OTQwY2VkZ2BgMDkwYzVkZDBjNDQzYDhgOSd1PDA2NDIzOTgwMTQncGhlPDQ3T0ZoVXVNMTE5ODkwLDQ3T0ZoVXVPMTE5ODkwJ3NicXU8aGNzYGlobC9mdHtkbUFjZGpuL2JubCdiPDQzJ2llbTwx&url=https%3a%2f%2fgithub.com%2fVERGE-PROJECT%2f3D-Design-Dataset)

**Citation**

* Provide a link to cite the dataset itself.
* Site the article if you have:

@article{3D design dataset for VR visualization ,

author = {I. Guzel},

title = {3D design dataset for VR visualization  },

year = {uly. 2025},

keywords={3D design, Virtual Reality, PLM, 5G network},

}

1. Cite the dataset itself.
2. @article{Real5GNetw,

  author = {S. Kosu, G. Kalem},

  title = {Enabling Innovation through VERGE's Open Data Space based on 5G Network},

  year = {Jan. 2024},

  journal = {Wireless World Research Forum Meeting 50 (WWRF #50)}

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