

gITF Webinar | Fall 2021

October 28 / VIRTUAL

Using gITF to Build a Virtual Factory in a Highly Interdisciplinary Environment

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Agenda

- What is Virtual Reality?
- More Than a Decade of Expertise in VR Technologies at Institute of Computer Science and Control
- Virtual Learning Factory Toolkit Project, Gamification VR Environment

What is Virtual Reality?



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Consortium of the Virtual Learning Factory Toolkit Project

- Tallinn University of Technology
- Institute for Computer Science and Control
- Politecnico di Milano
- National Research Council of Italy
- Chalmers University of Technology

Goal of the Virtual Learning Factory Toolkit Project

- Higher education has to keep pace with modern ICT, and engineering education in particular must offer students an understanding of the complexity of 21st century industry.
- Global market companies have to deal with the constant evolution of products, processes, and production systems, all in parallel. All these facets of industrial production can be more easily monitored, developed, and upgraded using digital applications based on the “digital twin” paradigm.
- The VLFT project helps industrial engineering students learn to take advantage of various enabling technologies like data modeling, discrete event simulation, Virtual Reality (VR) and Augmented Reality (AR)

Specification of the VLFT Gamification VR Environment

The VLFT includes a multi-user VR-based gamification environment. This virtual factory provides students with a realistic representation of a manufacturing system aimed to allow them to:

- Analyze the processes associated with manufacturing various products
- Assess the capabilities and processing times of machines
- Monitor failures and analyze related statistics
- Identify system bottlenecks

Stakeholders of the VLFT Gamification VR Environment

Internal Stakeholders:

- Software Engineers
- Manufacturing Engineers
- Professors
- Teachers
- 3D Artists

External stakeholders

- 3D Modelling Softwares
- Game Engines
- Software Libraries
- HMD Vendors

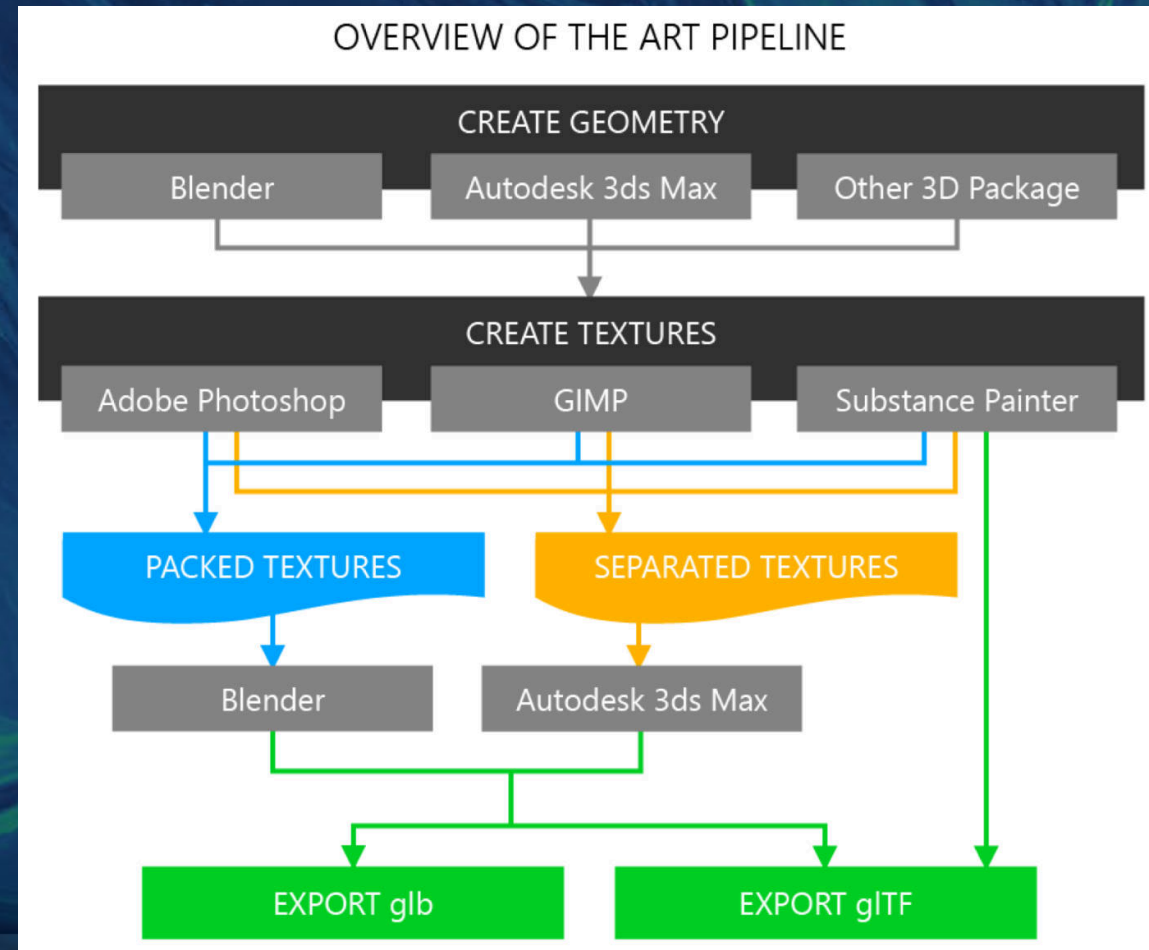


Using Virtual Reality Standards to Gamify Engineering Education

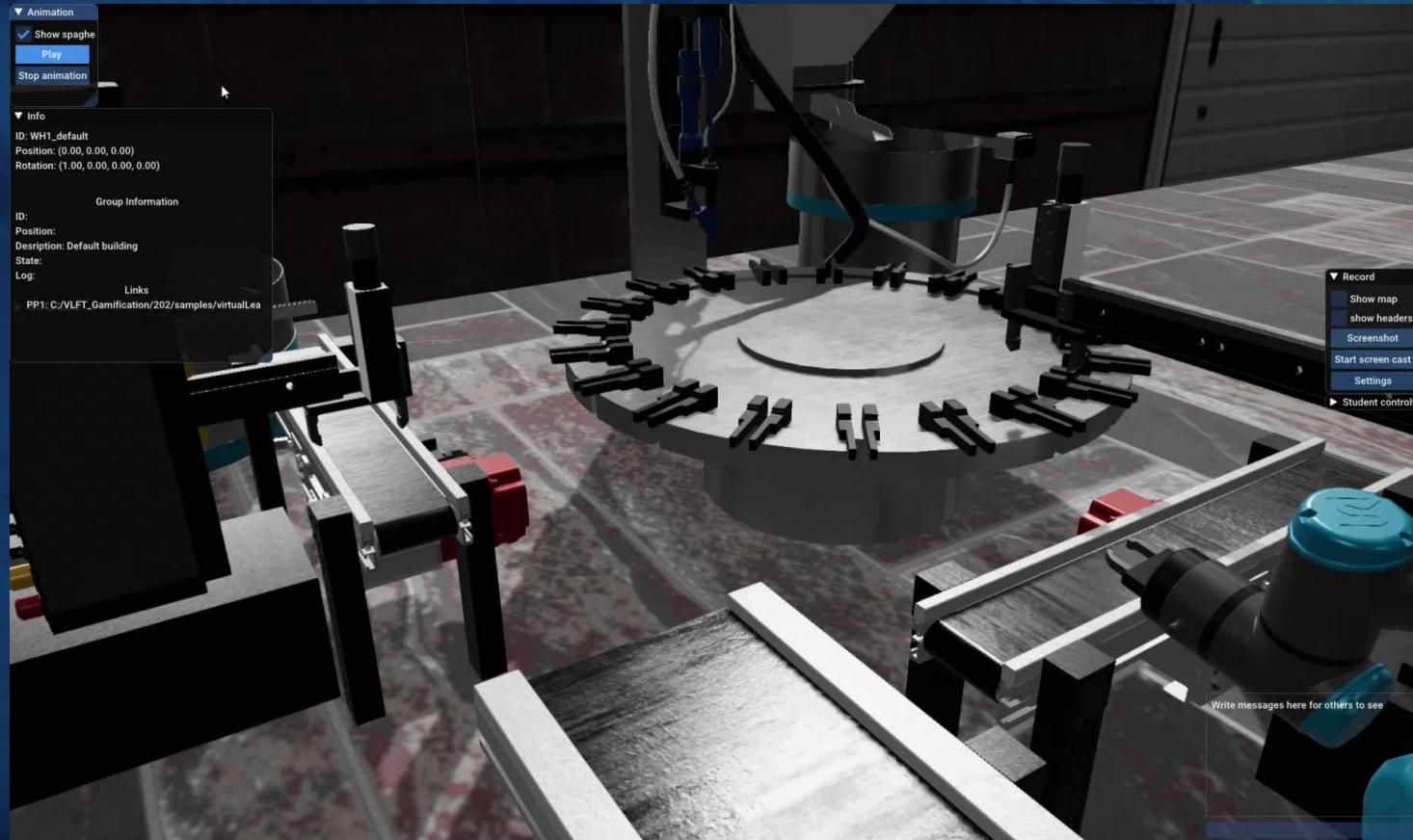
glTF

The Khronos glTF file format for 3D scenes and models helped unite the different groups and disciplines within the VLFT VR Gamification Environment development team.

glTF is the only royalty-free scene descriptor with photorealistic options that is supported by all VLFT Gamification Environment internal and external stakeholders.



Single-player Mode of the VLFT Gamification VR Environment



Multi-player Mode of the VLFT Gamification VR Environment

