



## TOOLKIT SECTION 6.

# More **DIGITAL /VISUAL TOOLS** For Engineering Education



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## 6. More Digital/Visual Tools for Engineering Education

Under this category we would like you to list any other digital or visual tools you might be using which tools that you are using which you feel help improve or further develop your engineering student's visual literacy skills

1

Unity

2

Panopto

3

Altspace or GLUE-VR



## Unity “In a Nutshell”

Unity - a cross-platform game engine for creating 2D and 3D computer games or other interactive materials, such as visualizations or animations. This engine is written in C, C++ (Runtime) and C# (Unity API).

Games created on the Unity engine support many hardware platforms, including Windows, Linux, Android. Among them there are also seventh and eighth generation consoles. Virtual reality helmets such as the Oculus Rift and Gear VR are also compatible with Unity. Games created in Unity after installing the Unity Web Player plug-in can also run in a web browser.

In unity it is possible to write scripts in UnityScript (similar syntax to JavaScript and C#).





## Unity Advantage

- Very effective while rendering 2D and 3D scenes
- Excellent for cross-platform development and multiplatform games
- Great assets store and tech support
- Great visual platform and game engine that is easy to use.
- Cost efficiency - it costs less than all its other competitors



## Unity Disadvantage

- Graphics are not as good as other game development engines
- Functionality - in Unity 5 engine has some performance issues
- Paid License required for the best graphics, deployment and performance improvements
- Source code - the code is stable but it can be difficult to find and fix performance issues in it
- Memory hogging - the game engine consumes memory causing OOM errors and debugging issues

## Unity Feedback/Insights

*“Unity can be used not only in STEM, not only for teaching multimedia, computer graphics, animation, interactive design, and programming, but also to build customized course content”*



Unity Expert



## Unity - In Action



How to Make a Game -  
Unity Beginner Tutorial:  
[YouTube](#)



LEARN UNITY - The Most  
BASIC TUTORIAL  
[YouTube](#)



## Panopto “In a Nutshell”

Panopto provides several services that can be used in E-learning contexts. The tool is designed to make videos, has various different functions, and can be used for screen casting, video streaming, presentations, video content management, uploading existing video and lecture/meeting recording.



### **Panopto is simple and easy to use**

Panopto is very easy to use. It is often used by teachers to plan virtual and blended learning activities but can also be used by students for presentations and video projects. Teachers can create private folders for the students, in that way the teacher can follow the students work.





## Panopto Advantage

- Light easy to use video editing program
- Easy to integrate and combine with other digital learning tools
- Can be used to create short video sessions but also the possibility of making small chapters or series of movies
- When a teacher is uploading a virtual learning session, the organization/school/university will get access to the video as well, the video belongs to the school and they can build a big library with virtual learning videos.



## Panopto Disadvantage

- Panopto is basic and easy to use but does not have a big variety of functions.
- The tool does not have many possibilities to add graphics and effects compared to other programs. This of course contributes to the simplicity of the program, but more advanced video editors might not choose to use Panopto.
- Panopto does not have many sharing options; this can be a disadvantage, when you have to share the videos outside of the organization.

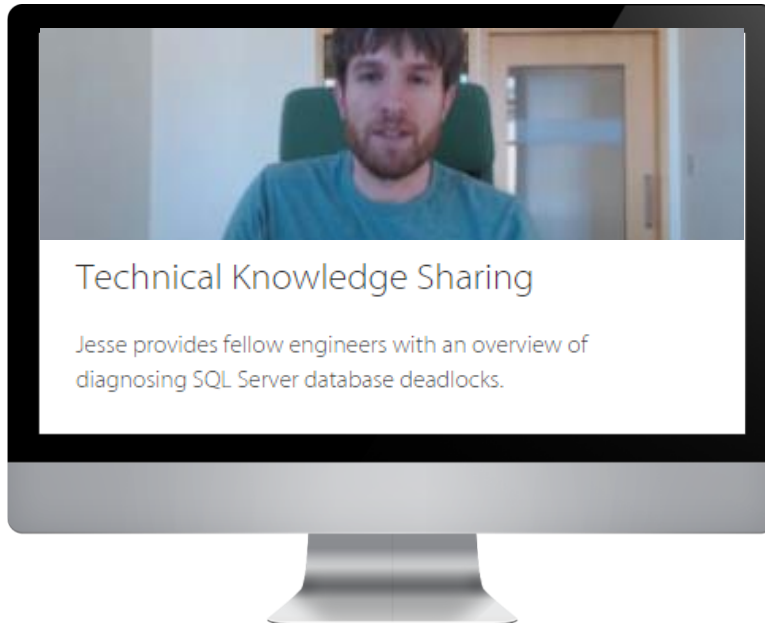
## Panopto Feedback/Insights

*“The teachers says that it is easy to learn how use the tool and as well to combine it with the other digital programs they are using ”*

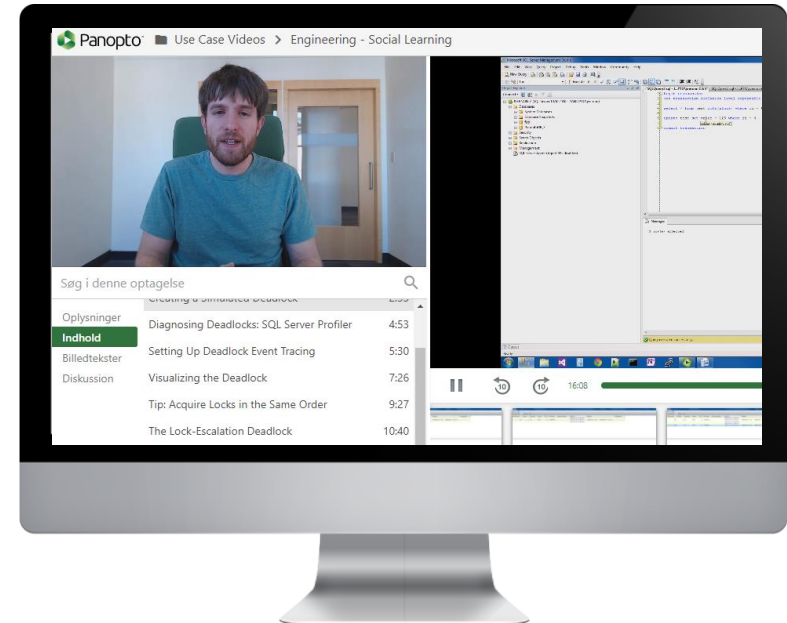




# Panopto - In Action



Panopto is a great tool for making presentations and in general to share knowledge with fellow students or teachers. See following examples:



Jesse has made headlines on his knowledge sharing video, now with this tool it is then possible for the viewers to jump between the parts, they don't want to watch.



## Altspace / GLUE-VR “In a Nutshell”

AltspaceVR is a social platform for virtual reality (VR). AltspaceVR is a platform that allows teachers and students to meet in a custom build world, through which they can gather, walk around, communicate, collaborate, present in small to large groups, and interact with the environment.

In AltspaceVR, teachers and students have their own self-customized unique avatar. AltspaceVR is a free app available via Microsoft Store, to be downloaded on one's laptop. AltspaceVR should be available on macOS, according to Apple. For the complete virtual reality experience, the user can enter AltspaceVR with a VR system, such as the Oculus Quest 2.





## Altspace Advantage

- Free and accessible via laptop.
- Simple and easy to use, small learning curve for educators and students
- Multiple uses; can be used for presentation, collaborative group exercises, and more
- Since the user is attending as an avatar, which can help students with social anxiety, introverted students, or other social challenges.



## Altspace Disadvantage

- AltspaceVR is a new education platform with no known best practice.
- Creation and editing worlds and VR spaces must be done by a programmer / specialist.
- Some users might feel anxiety using virtual reality.
- For fully VR experience, the users must be wearing a VR system.

## Altspace or GLUE-VR Feedback/Insights

*“AltspaceVR is amazing and has a lot of potential. The VR social platform & avatars give the students a chance to be in a secure environment. As an example, students can practice public speaking. In these COVID-19 times, the AltspaceVR gives the educators and students a chance to socialize while learning.”*



Kristian Høyland-Kroghsbo  
Math and Science teacher, Denmark



# Altspace / GLUE-VR - In Action



*Avatars (users) talking in an AltspaceVR world*



*A room portals to other virtual places, e.g. a 360 degree picture*

We hope you enjoyed our practical guidance to engineering educators on incorporating digital and visual design tools.

**Next up, we invite you to explore the VLEE Online Course which explores in depth the application of visual literacy for the actual practice of engineering in the real world ...**

