Benchmark VR

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Module VR déjà dans S3D AVEC HDM:

Attention last update 2018!
QUE AVEC DES HDM !!
Utilise pas UNITY
MAIS trop diff de la techno zSpace pour s'en inspirer

See at https://blog.kitware.com/slicervirtualreality/
Pas encore regardé https://www.slicer.org/wiki/Documentation/Labs/Augmented_Reality_and_Virtual_Reality_support

INTRO
You can interact with a scene in 3D Slicer using a VR head-mounted device (HMD) to train for medical procedures; perform surgical planning; or identify trends, patterns, and outliers in data.

OUTIL
Casque VR Compatible: include Oculus Rift; HTC Vive; and Windows Mixed Reality headsets by Acer, Lenovo, and HP. (avec manettes)
Extension : "SlicerVirtualReality" enables user to interact with the 3D scene using virtual reality. > https://github.com/KitwareMedical/SlicerVirtualReality
Rely on : OpenVRmodule https://blog.kitware.com/using-virtual-reality-devices-with-vtk/ > slicerVR sur l'app manager
No interaction with other widgets except : implicit plane, the region of interest and the fiducial widgets (update 2018)

HOW IT WORKS
Every model, volume or widget that can be displayed in 3D Slicer's 3D view can also be displayed in the VR view. This VR view is synchronized with the 3D Slicer scene. Hence, if you modify the scene in the 3D view, it will be instantly reflected in the VR view and vice versa.
You can also use the pose of the HMD controllers as transforms in the 3D Slicer scene. These transforms can be implemented in custom modules to reslice volumes (with the Volume Reslice Driver module in the SlicerIGT extension) or to manipulate any data in the scene.

LIST OF FEATURES
- View all 3D content typically displayed in the 3D view (e.g., 3D image data in the form of 2D image slices, volume renderings, and 3D models) inside the VR headset with a single click;
- Visualize 4D datasets using any rendering technique (including volume rendering) by means of the Sequences extension;
- Align the headset's view to match the viewpoint of the selected 3D view;
- Grab and reposition objects using the trigger on the right controller on HTC Vive and other mixed reality headsets; and
- Tune advanced volume rendering performance in the VR module in order to find a good balance between image quality and refresh rate.

DEV GUIDE
Donne ex de fonctions : Activate virtual reality view / Set virtual reality view background color to black / déplacement selection de node

CONCLUSION:
Need HeadSet

Accessing VR transforms (controller, headset, generic trackers) in Slicer :Go to *Virtual Reality* module and check the desired checkbox to update linear transform nodes with the various devices' positions.

Résumé :
Que des lunettes avec ou sans pc pour tourner dessus
Sinon écran holographique (looking glass ou zspace)

Techno privée et en dev comme : https://surgicaltheater.net/ mais aussi HDM
Utilise oculus atm pour montrer SON cerveau au patient etc
Software constructeur pas dispo en opensource (donc techno? Surement comme slicer vr)
Askip de la AR mais techno aps encore dispo
"**SNAP + SyncAR™ Module** Augmented Reality, 360° Visualization Hub "

SEUL AUTRE ECRAN CONNU :
LOOKING GLASS

! > Possible utiliser "you can use LookingGlass display, which is a similar 3D display but it can be used by multiple users at the same time (ZSpace can only show correct 3D image to a single user) and it is already supported by Slicer." Selon le dev de Slicer
Aussi holographique MAIS

Meme problemes que casque VR pas du tout meme mode de fonctionnement (calcule 100 images qui correspondent à l'objet complet en 3d et les affichent à la suite dans un cone de 50deg), pas de suivi avec des lunettes donc tt le monde peut voir (avantage)
C'est un fish tank "comme" le zSpace mais plus orienté VR (moins AR)

https://lookingglassfactory.com/product/portrait
https://docs.lookingglassfactory.com/
https://discourse.slicer.org/t/zspace-iao-and-vr-extension/15666

Souvent utilise
UNITY :

Ne dois pas utiliser ça mais review techno
QUE AVEC DES HDM

Utilisable avec PLUS et OpenIGTLink direct et des HDM (various) pour connecter à des devices IRL

HOLOLENS
de Perk Lab, last commit 2018
Intro : Contains plugins that allow you to connect to the Xbox controller, https://github.com/PerkLab/HololensQuickNav
Dev guide : https://github.com/PerkLab/HololensQuickNav/blob/master/DeveloperGuide.md

WEB VIEWER
"Previous virtual reality projects for Slicer have either been limited to specific hardware or have required the use of third party applications. The plan is to create an integrated virtual reality viewer as a module within 3D Slicer that can be used with the variety of consumer virtual reality devices releasing in the coming year. "
> project week 2014 déjà contacter Franklin King

Techno : Avec un HDM quand lance le module sur slicer lance une page web qui rend la vision 3d dans le casque + Fait la 3d avec Unity
Peut pas être utilisé out of the box

>> utilise pas VTK et ITK (alors que ICM que ça) du coup pas bien

CONCLUSION:
Pas assez précis + pas dans les pipes