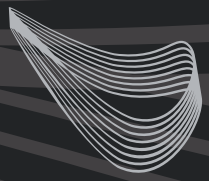


HOLODICOM®

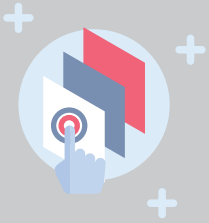
THE RADIOLOGY GLASSES OF MIXED REALITY

DIAGNOSTIC **MEDICAL IMAGE** IN AUGMENTED REALITY

HoloDicom is a powerful and innovative mixed reality software developed for the Microsoft Hololens viewer. It allows to display the diagnostic images available in DICOM format as ingraded three-dimensional holograms in the real environment.

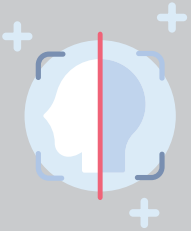
Once located in the space, it is possible to transfer, rotate, segment and scale on the images, to adjust their location and size according to the demand and need of the user.

1. Management of DICOM files



2. Anatomical planes

3. Projections



4. Segmentation

5. Measurement tool

6. Real-time shared panorama:

7. Viewer mode

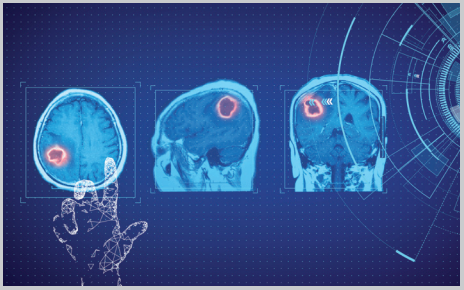
8. Realization of medical reports with assistant

Management of DICOM files:

HoloDicom allows to convert any file in DICOM format with three-dimensional content in a holographic image of mixed reality.

Anatomical planes:

HoloDicom shows a floating window, where it exposes the anatomical plans axial, coronal, sagital, and at mercy, oblicuo. In addition, it allows to navigate for the planes in an agile and efficient way. The windows of the anatomic projections aretreated as holographic objects and, as such, can progress, rotate and move in the real world.



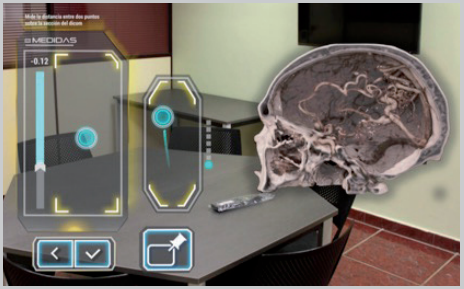
Projections:

HoloDicom provides the selected holographic representation, both in the chosen anatomical section, and in the complete 3D volume, simultaneously. In addition to enabling the application of the most relevant and frequent filters in the diagnosis by the image:

- MIP. Maximum intensity projection
- MINIP. Minimum intensity projection
- AIP. Average intensity projection

Measurement tool:

HoloDicom also has a tool for calculating distances within the holography, so that the user can accurately know the length of an area of diagnostic interest to highlight, regardless of the scale or plane in which the hologram it is located.



Segmentation:

Even, together with this innovative and efficient holographic vision technology, HoloDICOM stands out in the application of the most advanced segmentation techniques, already in the field of diagnostic imaging, among others:

- Segmentation based on the application of Hansfield units.
- Segmentation based on the Watershed algorithm.
- Segmentation based on the different levels of the gray scale ("Window Level").
- Segmentation based on the practical management of the threshold and penumbra (thresholding).

All the segments selected with any of these techniques can be saved, hidden or displayed individually, as well as applying different color ranges depending on their intensity.

Real-time shared panorama:

With HoloDicom, multiple users can participate in a plural session for concurrent simultaneous visualization of the diagnostic image, where one instructor member will possess the total domain of the team's interface, while the rest will be able to contemplate and perceive, in real time, all the utilities and movements in the application of any function, on the planes of the diagnostic anatomy, (measurements, segmentation, filters, anatomical planes...), while the holographic model is updated accordingly.

Viewer mode:

Thanks to the operative capacity of the spectator mode, it is feasible to connect the system to a standard video camera, which will project the diagnostic image on a traditional monitor so that a multiple audience can accompany and enjoy the interaction with the hologram. The chamber HoloDicom shows sensible and simultaneously the real world and the holographic world of the diagnostic images fused.

Realization of medical reports with assistant

This tool allows the realization of voice recordings and transcribing them automatically, through the use of a voice recognition service. It also allows to obtain and save diagnostic image catches from the user's point of view, which automatically fuses the real world with the holographic world.

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