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Spatial Representation of 3D X-ray CT using Mixed Reality that Matches the Practitioner's Perspective

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In recent years, research utilizing Mixed Reality (MR) has garnered attention in medical fields, particularly in radiology. By rendering data acquired from X-ray CT and MRA in 3D and aligning it with the real-world environment, MR can be applied to support diagnostics, simulate surgeries, and assist in medical procedures. However, conventional multi-planar reconstruction (MPR) images of sagittal, axial, and coronal views express 3D voxel information as 2D-pixel data, which differs from the practitioner's view when observing the patient. This makes it difficult to spatially grasp the internal anatomy of the patient. This study aims to use MR to represent the patient's internal structures in 3D and display MPR images aligned with the practitioner's perspective when observing the patient. Systems that employ a head-mounted display (HMD), spatial reconstruction display, and motion capture were proposed. By using the bed position as a reference point, the angle from which the practitioner views the patient was calculated, and MPR images from DICOM data were generated and superimposed on the real-world environment. As a result, practitioners can observe the internal structures of the patient according to their own viewpoint

Type of presence

Presence online

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