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Abstract

Purpose: We were focused on the development of personal-3D-navigation system and application of augmented reality in the operating room per viam personalized contactless hand-gesture non-invasive surgeon-computer interaction, with higher intraoperative safety, reduction of operating time, as well as the length of patient postoperative recovery.

Methods: Simultaneous use of video image, 3D anatomic fields and navigation in space, with the application of our original special plug-in application for OsiriX platform, enabling users to use LM-sensor as an interface for camera positioning in 3DVR and VE views, and integrating speech recognition as a VC solution, in an original way.

Results: Management of image 2D-3D-video-medical documentation, as well as the control of marker-based virtual reality simulation in real time during real operation with per viam our personalized contactless “in the air” surgeon’s commands.

Conclusion: The use of modern technologies in head and neck surgery in the last 30 years (e.g., FESS, NESS, and robotic surgery) has enabled surgeons to demonstrate spatial anatomic elements in the operating field, which was quite inconceivable before. This...