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Scientific Exploration of Spectral Cubes and catalogs using Immersive Technology: paving the way to the SKA

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With the advent of the SKA and other exascale science facilities, data storage and data visualisation present the scientific community with new challenges. The Inter-University Institute for Data-Intensive Astronomy (IDIA) Visualisation Lab at the University of Cape Town (https://vislab.idia.ac.za) is thus exploring new approaches to handle the exploration and detailed interrogation of multi-parametric astronomical datasets in preparation for the SKA era. Our talk presents the beta release of a new Virtual Reality software for data cube exploration named iDaVIE-v. iDaVIE-v, developed in collaboration with INAF-OACT, combines virtual reality (VR) technology and custom-built software to work with particle and volumetric datasets, enabling user-interaction and immersive exploration of 3D data, and it was specifically designed to explore HI spectral cubes from radio interferometers. The software has been developed through the Unity game engine using the SteamVR plugin and is compatible with all commercial headsets. It is now ready for its beta release and is already showing capabilities that will serve the astronomy community at large (e.g. enabling the immersive exploration of redshift catalogues, cosmological simulations, etc.). In our talk, we will introduce the system and its current capabilities, show some recent examples in which it was used to analyse MeerKAT data and outline our plans for its future development.

Reasearch area

Other

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