

Virtual Reality and game engines for interactive data visualization and event displays in HEP, an example from the ATLAS experiment

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Interactive 3D data visualization plays a key role in HEP experiments, as it is used in many tasks at different levels of the data chain. Outside HEP, for interactive 3D graphics, the game industry makes heavy use of so-called “game engines”, modern software frameworks offering an extensive set of powerful graphics tools and cross-platform deployment. Recently, a very strong support for Virtual Reality (VR) technology has been added to such engines. In this talk we explore the usage of game engines and VR for HEP data visualization, discussing the needs, the challenges and the issues of using such technologies. We will also make use of ATLASRift, a VR applications developed by the ATLAS experiment, to discuss the lessons learned while developing it using the game engine “Unreal Engine”, and the feedback on the use of Virtual Reality we got from users while using it at many demonstrations and public events.

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