An Application Framework for Interactive Navigation System

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ABSTRACT

The application development based on frameworks can reuse both codes and design concepts, which allows developers to concentrate on the domain-specific functionality. MVC (Medical Visualization Class) is an application framework for medical visualization. It is based on the Document-View architecture of MFC, and integrates both ITK and VTK frameworks. MVC provides common medical visualization functions, such as reading DICOM files, image processing and various 2D/3D rendering algorithms, to help develop medical visualization applications. This paper aims at extending the existing MVC with the following new features: (1) add the interactive navigation based on existing surface rendering function, which allows users to view 3D image data in a way similar to the endoscopy; (2) improve the header parsing functionality by providing a flexible query mechanism and its display module; (3) connect 2D and 3D rendering windows so that their display contents can be synchronized. MVC integrates application frameworks of different domains, so that the developer can build a medical application effectively with understanding only one application framework.

Keywords : Application Framework ; Medical Image ;Surface Rendering ; Navigation

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