

3D Medical Image Visualization on the iPhone/iPod Touch

Róbert PÉTER, Mihaela GORDAN

Abstract

As smartphone devices become more powerful, they gain an increased role not only in communication, gaming, social networking, but also in science and research, like medical applications. The hardware present only in such devices, like the touch screen, accelerometer and the gyroscope, allow a more intuitive and natural way of interaction. An approach for the visualization of 3D medical images (CT/MRI) is presented, on Apple's smartphone, the iPod/iPhone, using the platform independent OpenGL graphics library. The application also makes use of the gyroscope, allowing the user to rotate 3D volumes by moving and rotating the device itself, and of touch gestures (pinch and zoom) for translation in space. To achieve real-time interaction, one has to take care not to draw too many vertices in a single drawing cycle, which is achieved by down sampling the original images, and by drawing only the surface of the volume.