

Portfolio Paper

## ScientificVR Capabilities in Magnetic Resonance Visualization

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Fig. 1. Kidneys and retroperitoneal space arteries magnetic resonance tomography visualization.

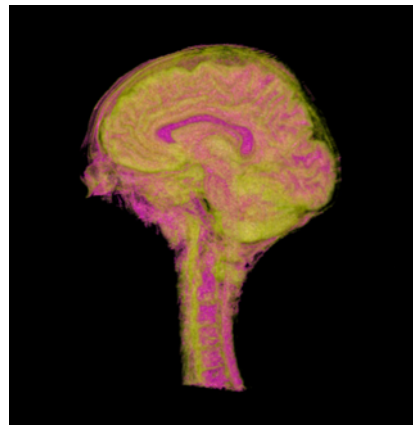


Fig. 2. Cerebrum magnetic resonance tomography visualization.

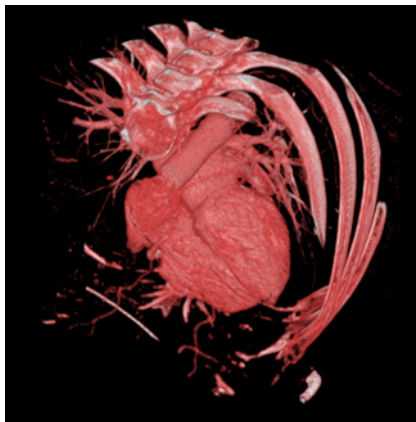


Fig. 3. Heart magnetic resonance tomography visualization.

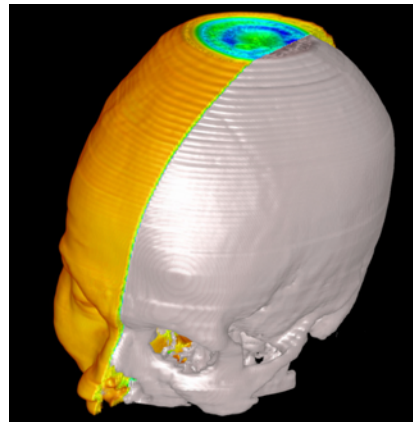


Fig. 4. Head magnetic resonance tomography visualization.

The figures show the GDT Software Group's ScientificVR® (SVR) package application for a 3D visualization of magnetic resonance (MR) tomography results, kindly given by the Russian Cardiological Scientific Production Center, [www.cardioweb.ru](http://www.cardioweb.ru). The visualization results are presented, using the semitransparent voxel technique in iso-surface realization. Figure 1 shows a 3D image of a part of kidneys and retroperitoneal space arteries. Figure 2 shows a 3D image of a part of a cerebrum and spinal cord. 3D image of a part of a heart, coronary arteries and a spinal column are shown in Fig. 3, and a 3D image of a part of a head, the one half of which is skin naked, is shown in Fig. 4. The section one can see on the head top (Fig. 4) is caused by and corresponds to the visualized domain boundary. The possibility of voxel transparency adjustment and an image rotation is an important advantage of this kind of MR data presentation approach, as it allows seeing an inside of a 3D object visualized providing a more informative and meticulous examination. The SVR resolution conforms to the tomograph resolution in full. This enables to give an opportunity to reconstruct data obtained for any plane or visualize a number of human organs. Stereoscopic visualization support can increase the efficiency of the voxel technology. The color coding of pictures could be chosen in accordance with a user request.