

THE OPPORTUNITY:

Software and patented methodologies to enable real-time, interactive volume rendering of large datasets of images **on a conventional PC** are available for licensing.

The approach employs a two-pass rendering process that utilizes the graphics processor unit (GPU) in the graphics hardware of a conventional personal computer.

MEDICAL IMAGING APPLICATIONS:

Ideally suited for organizations specializing in biomedical technology such as hospitals, universities, and other research institutions in the public and private sectors.

THE TECHNOLOGY

This novel approach provides hardware-accelerated block filtration by means of 3D-textured axis-aligned slices. Fragment processing in a rendering pipeline is lessened by passing fragments to various processors selectively in blocks of voxels (volume pixel elements) based on a filtering process on the slices.

The process involves generating a corresponding image texture and performing two-pass rendering; namely, a virtual rendering pass and a main rendering pass.

Block filtration processes utilize the vertex shader and pixel shader of a GPU in conventional PC graphics hardware. The method is for multi-thread, multi-GPU operation.

Key Features

Although interactive volume rendering is normally extremely tedious, time-consuming, and data-intensive, the CUHK technology enables much easier fragment processing. In addition, it has been determined that the technology:

- Is faster than existing technologies in the market;
- Can accommodate a large dataset volume;
- Is suitable for an ordinary PC;
- Provides a real-time, interactive system and method for visualizing images in three dimensions.

INTELLECTUAL PROPERTY

The technology was developed by Dr. Heng Pheng-Ann at The Chinese University of Hong Kong (CUHK). Dr. Heng is a professor in the Department of Computer Science and Engineering at CUHK. For his biography, see: <http://www.cse.cuhk.edu.hk/~pheng/>.



Additional background materials and examples are available at:

- CUHK's Virtual Reality, Visualization and Imaging Research Centre home page. A unit of the Department of Computer Science & Engineering, this site is available at: www.cse.cuhk.edu.hk/~crc/.
- Dr. Heng's "Virtual Anatomy" page: www.cse.cuhk.edu.hk/~csc/va.html describes the Chinese Visible Human Project research team's success in collecting the first Chinese visible human data set in October 2002. Including the original American Visible Human and Visible Korean Human, there are now a total of three reported visible human datasets in the world.

IP available for licensing includes:

- Filed US regular application;
- CIP of the above application; and
- Chinese patent application claiming the US application.

FOR ADDITIONAL INFORMATION

First Principals, Inc. is representing CUHK in identifying appropriate organizations that seek to acquire this technology. Please contact:

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