

**Development of an autostereoscopic live 3D video system
enabling video to be displayed live in 3D**

High-speed processing of images from 64 video cameras for real-time 3D display

Tokyo, June 2, 2008 --- Associate Professor Takeshi NAEMURA of the Graduate School of Information Science and Technology, the University of Tokyo, and Hitachi, Ltd. (NYSE: HIT / TSE: 6501) today announced that they have together succeeded in the development of a system for displaying live video on a three dimensional (3D) display without the need for special glasses. The system was achieved by combining the portable 64-camera array developed by the University of Tokyo with the “autostereoscopic 3D display” developed by Hitachi, Ltd., and further developing high-speed image processing technology. The entire system has the added feature of mobility as the camera array system is portable, and data processing can be conducted on a standard PC. As current events can be broadcasted live with a sense of depth, this development is expected to contribute to the practical application of autostereoscopic 3D live video systems.

Currently, various methods exist for autostereoscopic 3D display which does not require special glasses. Hitachi has been developing the Integral Videography (IV) method, which extends the conventional Integral Photography (IP) method to video. The method uses a high definition display with a micro-lens array on its surface, consisting of rows of tiny convex lenses, enabling images with disparity to be seen not just from the left and right but also from top and bottom direction, enabling several people to view the display from different angles at the same time without special glasses and observe a natural 3D image. With the IV method, light is emitted in 60 directions from a single micro-lens on a liquid crystal display (LCD) to produce the 3D image. Thus to produce a 3D image with conventional IV method, 60 views taken of a 3D space from 60 directions is required, and therefore until now, it was only used to show pre-prepared computer graphic (CG) contents.

Applying computer graphics technology (free-viewpoint video synthesis technology), the University of Tokyo and Hitachi developed a method to convert in real-time the video image input from the 64 camera portable array into 60 views, and display it on an “autostereoscopic 3D display.” As a result, it is now possible to view live transmission of 3D video without the use of the special glasses.

Features of the system are as follows:

(1) Free adjustment of the display position and solidity of a specific subject

A method was developed to flexibly and quickly process the depth of the video to be shown on the micro-lens. As a result, the position of the subject to be shown on the “autostereoscopic 3D display” can be flexibly adjusted to appear upfront or in the background, to the left or right, or top or bottom, in real time. Further, the 3-dimensionality of the subject can also be freely adjusted.

(2) Achievement of portability

The 64 camera array system consists of networked-camera (8 rows x 8 tiers), and the video is transmitted through a single gigabit Ether cable. Further, data processing of the extensive video data from the 64 cameras is conducted on a standard PC (fitted with an off-the-shelf GPU (graphics processing unit)). As a result, the system can be easily transported.

The development of the system allows current events to be viewed live with a sense of depth, and opens the way for the practical application of autostereoscopic 3D live video systems.

Operation of the system will be on demonstrated at the 3D Image Conference to be held from July 10-11, 2008 at the University of Tokyo, Japan and at SIGGRAPH ASIA 2008 to be held from December 11-13, 2008 at the Suntec Singapore International Convention & Exhibition Centre, Singapore.

About Hitachi, Ltd.

Hitachi, Ltd., (NYSE: HIT / TSE: 6501), headquartered in Tokyo, Japan, is a leading global electronics company with approximately 390,000 employees worldwide. Fiscal 2007 (ended March 31, 2008) consolidated revenues totaled 11,226 billion yen (\$112.2 billion). The company offers a wide range of systems, products and services in market sectors including information systems, electronic devices, power and industrial systems, consumer products, logistics, materials and financial services. For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

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