Real Time 3D Video Avatar Using Serial Distributed Processing Method
Tetsuro Ogi / Keio University, Mitsutaka Sakai / University of Tsukuba

Concept
Recently, immersive projection displays have been used for tele-communication environment. In order to realize the high-presence communication in the networked three dimensional immersive virtual world, the high presence representation method of the remote users using the three-dimensional image is required. However, it was difficult to represent the three-dimensional video avatar in the shared virtual world in real time because of the large computation load and large amount of communication data. Therefore, in this study, the serial distributed processing method that can represent the three-dimensional video avatar in the immersive projection display in real time was proposed.

3D Video Avatar Using Shape from Silhouette
As a basic technique of generating the video avatar, the shape from silhouette was used.

Optimized Distributed Processing
In this study, calculation time for each elemental process of making 3D video avatar was measured, and the optimized distributed process of generating 3D video avatar was designed.

Application of real time 3D video avatar
3D video avatar was integrated in the immersive virtual world in real time, and it was applied to the tele-immersive communication between remote users.

Summary
In this study, real-time 3D video avatar generation technique using the serial distributed processing method was developed, and the performance over 15Hz was realized. Future work will include developing the practical applications, such as the remote presentation or the remote education, using the 3D video avatar technology.

References: