

# KA-O-RI

KEN ANJYO

*Hitachi Ltd*

The interactive computer graphics theater offers a challenging trial for making future play or drama both exciting and interactive through real-time 3D computer graphics. It is the collaborative project of Hitachi Ltd. and Fuji Television Network Inc.

KA-O-RI is the name of a virtual actress appearing on a monitor screen in a presented play. The texture data of KA-O-RI's face were based on the photographs of an actual person and were

mapped onto the polygonal face model. Then her face was arranged so that it looks more realistic and of high quality.

The virtual actress "plays" according to the scenario, whereas she is practically manipulated by an actual actress and a few operators. In the demonstration the real actress talks, her voice reaching the audience by microphone. Using the originally developed lip-synchronizer, the movements of her lips are then translated into those of KA-O-RI's lips. Some of KA-O-RI's facial expressions—such as smiling, perplexed, and funny faces—were typically made in advance. Then, according to the story, an operator selects the typi-

cal facial expressions using the dial button box, each button of which corresponds to one of the typical facial expressions. The algorithms for real-time facial animations were newly developed and are used in generating and interpolating these emotional movements. Eye contact or movements of head are also controlled by an operator.

The first performances of "KA-O-RI" were made in Tokyo during 11 to 14 March of this year. The original play was then 100 minutes long, whereas the SIGGRAPH 93 version is rather shortened.

The impact of this trial will emerge as the interaction between actual persons and the virtual actress of high quality, which has never been experienced. The trial will demonstrate the great potentials of virtual actors in a future play or entertainment. It should also be noted that this is the result of interaction between the state-of-the-art software and hardware technologies.



#### Hardware

SGI Onyx  
Personal Iris  
Software  
Hitachi and Fuji television software

#### Contact

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- KA-O-RI, Freelance, Virtual Actress

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