111C OS8 The New Trend of Human Interface -Embodiment and Personalization-

Wednesday, July 25 13:20-15:20 Room 11

111C-1 Man-Machine Interaction as Co-Generation Process

○Yoshihiro MIYAKE

Human-human system can coordinately self-organize various functions by their mutual communications. In this study, we aimed to establish a design principle of man-machine system to realize such a "co-generation" process in human-human system. This developmental dynamics is modeled based on "duality" of human communication which is composed of simultaneous and causal relationships. The former is represented by body model and is to organize coherence between human and machine, and the latter is internal model to separate the

111C-2 Analysis of the Process of Mutual Interaction between Human and Internal Control Model

○Takeshi Muto, and Yoshihiro Miyake

This paper suggests 'Internal control model' as the model of human's flexible and cooperative behavior. This is the technology to which applied the phenomenon called 'Entrainment of bodily rhythm' and its dynamics at human's cooperative behavior. To discuss the effectiveness of the model, by using 'Walking support robot' to which applied the model, the process realizing cooperative walk between human and the robot is analyzed. From the results, it is clarified whether or not Internal control model is able to realize flexi-

111C-3 Analysis of Entrainment of Respiration in Listening to Music and Application for Media Player

○Tomohito Ymamoto and Yoshihiro Miyake

In this research, we analyze the difference between music of a live performance and music of passive media (such as CD) from the viewpoint of interaction between player and listener. As a result, forced and mutual entrainment was discovered between a bar period and listener's respiration period, and a communication model was constructed and its experiment was performed.

111C-4 New Ensenble System Based on Mutual Entrainment

○Yohei Kobayashi, Yoshihiro Miyake

The ensemble of human is better than that of machine. This is because the machine has no feedback information from the human's performance, such as tempo. In this study, thus, two types of ensemble system betseen human and the machine are constructed. One is the system based on forced entrainment and the other is based on mutual entrainment. Finally, effectiveness of mutual entrainment based sytem is shown.

111C-5 Peripheral Representation of Embodied Interaction for Co-creative Telecommunication on Emergence Reality

○Shigeru WESUGI, Yoshiyuki MIWA

Authors designed and developed spatial representation of embodied interaction for hands-on modeling activities between remote locations. This paper describes examinations on effect of three representations: embodied avatar, direction vector, and peripheral frame of which location, posture, and transparency changes. The examination, following target, threw possibilities of calling awareness such as gaze. It will be a clue to 'Emergence Reality' ,which is an idea creating wholeness.

111C-6 Human-Human Communication by Remote-Controlled Humanoid Robot System

○Takashi NISHIYAMA, Hiroshi HOSHINO, Kenshi SUZUKI, Kazuya SAWADA

METI has launched a national 5-year-project called Humanoid Robotics Project (HRP) since 1998FY. In this project, we have developed a novel humanoid robotic tele-existence system, which can assist and cooperate with people. This paper describes a newly developed tele-existence cockpit for humanoid robot control, and shows some technical demonstration to evaluate the developed cockpit and the robot. A human operator in the cockpit controls the robot in a remote site as if he were just inside the robot. Also, he can em-