TE05

Robot System I

15:40-17:40
Room : 1st Floor-Strauss

Chair1 : Samuel E. Moskowitz (The Hebrew Univ., Israel)
Chair2 : Masahiko ITOH (Miyagi National College of Technology, Japan)

15:40 – 16:00 **TE05-1**

Loss Pathways and Control of a Slipping Robot Wheel

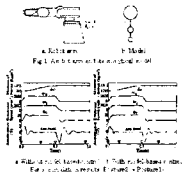
Samuel E. Moskowitz(The Hebrew Univ., ISRAEL)

16:00 – 16:20 **TE05-2**

Vibration Suppression Control for an Articulated Robot: Effects of Model-Based Control Using Time-Varying Control Model

Masahiko ITOH(Tech. Miyagi Nat'l College, JAPAN)

1. Introduction
2. Reduced-Order Model of Robot System
3. Model-Based Control
4. Simulation Results
5. Experimental Results and Considerations
6. Conclusions



16:20 – 16:40 **TE05-3**

Intelligent Association in Agents Based Ubiquitous Computing Environments

Hakan Duman, Hani Hagras, Vic Callaghan, Graham Clarke, Martin Colley(Univ. of Essex, UNITED KINGDOM)

Our living spaces are becoming increasingly populated with infinite numbers of intelligent embedded agents we are interacting with. In ubiquitous computing environments the aim is to support the occupants during their everyday lives and enhance their living conditions. In this paper we introduce such an environment, the iDorm, which has arisen from our work in careAgents, a project supported by the UK-Korean S&T collaboration fund and the EU's Disappearing Computer Initiative eGadgets project. We discuss the research challenges involved, particularly those relating to intelligently associating and configuring large numbers of embedded agents. The paper presents an intelligent association sys...

16:40 – 17:00 **TE05-4**

Robot Operation Management in Internet TeleCare Systems

Chunhai Hou, Songmin Jia, Gang Ye, Kunikatsu Takase(Univ. of Electro Communications, JAPAN)

- Definition of TeleCare
- Motivations behind Internet TeleCare with Robots
- Framework of Robot Operation Management
- Database Structure
- Chat Room Conference
- Remote Robot Control by Softswitch
- Experimental Results and Conclusion

17:00 – 17:20 **TE05-5**

A decentralized control of cooperative transportation by multiple mobile robots using neural network compensator

Xin Yang, Keigo Watanabe, Kazuo Kiguchi, Kiyotaka Izumi(Saga Univ., JAPAN)

In this paper, we propose a method using neural network (NN) to improve the motion control of a decentralized control system for cooperative transportation. In our former work, a decentralized control system for transporting a single object by multiple nonholonomic mobile robots has been developed. One of these mobile robots acts as a leader, who is assumed to be able to plan and to manipulate the omnidirectional motion of the object. Other robots, referred to as followers, cooperatively transport the object by keeping a constant position relative to the object. In this work, it is assumed that the leader can not only plan but also broadcast the local velocity of the object. Then...

17:20 – 17:40 **TE05-6**

Internet-based Teleoperation of a Mobile Robot with Force-reflection

Jae Nam Lim, Hae Gon Moon, Jae Pyung Ko, Jang Myung Lee(Pusan Nat'l Univ., KOREA)

In this paper, the relationship between a slave robot and the uncertain remote environment is modeled as the impedance to generate the virtual force to feed back to the operator. For the control of a teleoperated mobile robot equipped with camera, the teleoperated mobile robot take pictures of remote environment and sends the visual information back to the operator over the Internet. Because of the limitation of communication bandwidth and narrow view-angles of camera, it is not possible to watch the environment clearly, especially shadow and curved areas. To overcome this problem, the virtual force is generated according to both the distance between the obstacle and robot and the approachin...