

# FE05

## Robot System IV

15:40-17:40

Room : 1st Floor-Strauss

Chair1 : Masanori Sugisaka ( Oita Univ., Japan )

Chair2 :

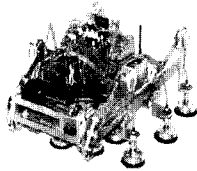
15:40 – 16:00

FE05-1

### Self Contained Wall--Climbing Robot with Closed Link Mechanism

Taehun Kang, Jaejun Park, Hyungsuk Kim, Hyoukryeol Choi(Sungkyunkwan Univ., KOREA)

- A compact and robust wall-climbing robot, called MRWALLSPECT-II, is developed.
- The robot is a self-contained system for scanning external surfaces of gas or oil tank.
- The robot has advantages of reduced actuators, parts and easy control.
- The mechanism of the robot employs a closed link mechanism.
- Self-Contained, Wall-Climbing, MRWALLSPECT



16:00 – 16:20

FE05-2

### A Paraconsistent Robot

Jose Pacheco Almeida Prado(Paulista Univ., BRAZIL)

Building autonomous robots have been a central objective of research in artificial intelligence. The development of techniques for autonomous navigation in real environment consist one of the main tendencies of the current researches about Robotics. An important problem in autonomous navigation is the necessity of dealing with a great amount of uncertainties inherent to the real environments. The paraconsistent logic has characteristics that make it become an adequate tool to solve this problem. In this work, it is proposed a technique of mapping the real world in the navigation of an autonomous robot using the paraconsistent logic.

16:20 – 16:40

FE05-3

### Probabilistic localization of the service robot by map-matching algorithm

Dong Heui Lee, Woojin Chung, Munsang Kim(KIST, KOREA)

A lot of localization algorithms have been developed in order to achieve autonomous navigation. However, most of localization algorithms are restricted to certain conditions. In this paper, Monte Carlo localization scheme with a map-matching algorithm is suggested as a robust localization method for the Public Service Robot to accomplish its tasks autonomously. Monte Carlo localization can be applied to local, global and kidnapping localization problems. A range image based measure function and a geometric pattern matching measure function are applied for map matching algorithm. This map matching method can be applied to both polygonal environments and un-polygonal environments and achieves ...

16:40 – 17:00

FE05-4

### Research of soccer robot system strategies

Masanori Sugisaka, Toshiro Kiyomatsu, Masayoshi Hara(Oita Univ., JAPAN)

In this paper, as an ideal test bed for studies on multi-agent system, the multiple micro robot soccer playing system is introduced at first. The construction of such experimental system has involved lots of kinds of challenges such as sensors fusing, robot designing, vision processing, motion controlling, and especially the cooperation planning of those robots. So in this paper we want to stress emphasis on how to evolve the system automatically based on the model of behavior-based learning in multi-agent domain. At first we present such model in common sense and then apply it to the realistic experimental system. At last we will give some results showing that the proposed approach is feasi...

17:00 – 17:20

FE05-5

### Design of a Control Architecture for an Internet-based Robot Control System

To Dong Nguyen, Sang-Rok Oh, Bum Jae You, Myung Hwangbo(KIST, KOREA), Brian Kwang-Ho Lee(UIUC, USA)

- Introduction to the concept of the Mobile Robot working mode(online and offline mode)
- Introduction to the Issac Robot specification
- Discussion on the technology selection
- Description of the system and software architecture
- System implementation result.
- Conclusion and future work