

# I-SA01

## Neural Network and Intelligent System

09:00-11:00  
Room : C105

Chair : Ikuo Yoshihara ( Miyazaki Univ. )  
Co-Chair : Kang Hoon ( Chungang Univ. )

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09:00 – 09:20

I-SA01-1

### **PAS: Personalized Research Agent System using Modified Spreading Neural Network**

Young-Im Cho  
(Pyongtaek Univ.)

The researches of science and engineering need the latest information from internet resources. But searching and filtering processes of appropriate web documents from huge internet resources are very complex as well as having some repeated procedures. In this paper, I propose a Personalized Agent System(PAS), which can filter World Wide Web Documents that the user is interested, such as papers. To do this, PAS uses a modified spreading activation neural network which I propose here. PAS observes the user's local paper database to analyze, adapt and learn the user interests, and the then constructs the user-specified neural network model by the analyzed interests ...

09:40 – 10:00

I-SA01-3

### **Vision Navigation System by Autonomous Mobile Robot**

Shin S.Y., Lee J.H., Kang H.  
(Chung-Ang Univ.)

It has been integrated into several navigation systems. This paper shows that system recognizes difficult indoor roads and open area without any specific mark such as painted guide line or tape. In this method, Robot navigates with visual sensors, which uses visual information to navigate itself along the road. An Artificial Neural Network System was used to decide where to move. It is designed with USB web camera as visual sensor.

09:20 – 09:40

I-SA01-2

### **Design of An Intelligent Hybrid Controller for Autonomous Mobile Robot**

Seung-Min Baek and Tae-Yong Kuc  
(Sung Kyun Kwan Univ.)

Recently, a need of non-industrial robot, such as service, medical, entertainment and house-keeping robot, has been increased. Therefore, the capability of robot which can do intelligent behavior like interaction with men and its environment become more prominent than the capability of executing simple repetitive task. To implement an intelligent robot which provides intelligent behavior, an effective system architecture including perception, learning, reasoning and action part is necessary. Control architectures for intelligent robot can be divided into two different classes. One is deliberative type controller which is applicable to high level intelligence like environment ...

10:00 – 10:20

I-SA01-4

### **Generating Complicated Models for Time Series Using Genetic Programming**

Ikuo YOSHIHARA (Miyazaki Univ.),  
Moritoshi YASUNAGA(Tsukuba Univ.)

Various methods have been proposed for the time series prediction. Most of the conventional methods only optimize parameters of mathematical models, but to construct an appropriate functional form of the model is more difficult in the first place. We employ the Genetic Programming (GP) to construct the functional form of prediction models. Our method is distinguished because the model parameters are optimized by using Back-Propagation (BP)-like method and the prediction model includes discontinuous functions, such as if and max, as node functions for describing complicated phenomena. The above-mentioned functions are non-differentiable, but the BP method requires derivative. To solve this problem, we develop ...