D-FA04 Intelligent System 1

09:00 – 11:00 Chair : Shim Kwee-Bo (Chung-Ang Univ.)
Room : 4133 Co-Chair : Kim Dong Hwa (Hanbat National Univ.)

09:00 – 09:20 D-FA04-1

A Self-Recognition Algorithm based Biological Immune System

Kwee-Bo Sim, Dong-Wook Lee, Sang-Joon Sun and Jae-Yoon Shim
(Chung-Ang University)

Accordong as many people use a computer newly, damage of computer virus and hacking is rapidly increasing by the crucial users. A computer virus is one of program on computer and has abilities of self reproduction and destruction like a virus of biology. And hacking is to rob a person's data in a intruded computer and to delete data in a person's computer from the outside. To block hacking that is intrusion of a person's computer and the computer virus that destroys data, a study for intrusion-detection of system and virus detection using a biological immune system is in progress. In this paper, we make a model of positive selection and negative selection of self-recognition process that is ability of...

09:20 – 09:40 D-FA04-2

A Study and Implementation on Automatic Design of Artificial Neural Networks using Cellular Automa Techniques

Kwee-Bo Sim, Dong-Wook Lee, Chang-Bong Ban and Sang-Young Kwak
(Chung-Ang University)

This paper is the result of constructing information processing system such as living creatures' brain based on artificial life techniques. The living things are best information processing system in themselves. One individual is developed from a generative cell. And a species of this individual has adapted itself to the environment through evolution. We present a new type of neural architecture consistiong of chaotic neurons and implementation. To evolve chaotic neural systems, we use cellular automata. In order to obtain the best neural networks in the environment, we evolve the arrangement of initial cells. The cell, that is neuron of neural networks, is modeled on chaotic...

09:40 – 10:00 D-FA04-3

The Traffic Sign Classification by using Associative Memory in Cellular Neural Networks

Shin Yoon-Cheol, Jo Deok-Yeon and Kang Hoon
(Chung-Ang University)

In this paper, discrete-time cellular neural networks are designed in order to function as associative memories by using Hebbian learning rule and non-cloning template. The proposed method has a very simple structure to design and to learn. Weights are updated by the connection between the neuron and its neighborhood. In the simulation, the proposed method is applied to the classification of a traffic sign pattern.

10:00 – 10:20 D-FA04-4

Recognize vowel using self organizing map

Jang Sunghwan, Lee Jayong and Kang Hoon
(Chung-Ang University)

This paper deals with recognizing ten korean voiced vowels using Self Organizing Map. SOM is a good classifier. The output layer is composed of two dimensions. The input vector is the frequency values having the characteristic of voiced vowels. The short time frequency transform is used getting input vector. The final neural networks is attached SOM output layer.

10:20 – 10:40 D-FA04-5

A Feasibility Study on Application of Immune Network for Intelligent Controller of a Multivariable System

Dong Hwa Kim
(Hanbat National Univ.)

This paper suggests that the immune algorithm can effectively be used in tuning of a multivariable system. Then artificial immune network always has a new paraller decentralized processing mechanism for various situations, since antibodies communication to each other among different species of antibodies/B-cells through the sitmulation and suppression chains among antibodies that form a large-scaled network. In addition to that, the structure of the network is not fixed, but varies continuously. That is, the artificial immune network flexkbly self-organizes according to dynamic changes of external environment (*meta-dynamics* function). However, up to the present time, models based on the conventional crisp approach...