09:00-11:00 **Chair1 : Kwee-Bo Sim (Chungang Univ., Korea)**
Room : 1st Floor-Wilder Kaiser **Chair2 :**

09:00 – 09:20 **TA04-1**

Sliding Mode Control with Nonlinear Interpolation in Variable Boundary Layer

yookyung kim(ADD, KOREA), gijoon Jeon(Kyungpook Nat'l Univ., KOREA)

●Sliding mode control (SMC) with nonlinear interpolation in variable boundary layer (VBL) is proposed
●A sigmoid function is used for nonlinear interpolation in VBL.
●The parameter of the sigmoid function is tuned by fuzzy controller.
●The choice of parameter for the sigmoid function is guided by FC.
●The parameter is continuously updated as boundary layer thickness varies.
●The proposed method has better tracking performance than the conventional linear interpolation
●To demonstrate its performance the proposed control algorithm is applied to a nonlinear system.

09:20 – 09:40 **TA04-2**

The Stabilization of an Affine TS Fuzzy System by using an ILMI method

Bongjae Rhee, Sangchul Won(POSTECH, KOREA)

●Introduction
●An affine fuzzy system
●The stabilization of an affine fuzzy system
●Iterative LMI algorithm for the stabilization
●A numerical example
●Conclusion

09:40 – 10:00 **TA04-3**

Labeling Q-learning with SOM

Haeyeon Lee, Kenichi Abe(Tohoku Univ., JAPAN), Hiroyuki Kamaya(Hachinohe Nat'l College, JAPAN)

Reinforcement Learning (RL) is one of machine learning methods and an RL agent autonomously learns the action selection policy by interactions with its environment. At the beginning of RL research, it was limited to problems in environments assumed to be Markovian Decision Process (MDP). However in practical problems, the agent suffers from the incomplete perception, i.e., the agent observes the state of the environments, but these observations include incomplete information of the state. This problem is formally modeled by Partially Observable MDP (POMDP).
One of the possible approaches to POMDPs is to use historical nformation to estimate states. The problem of these approaches is how t...

10:00 – 10:20 **TA04-4**

Intrusion Detection Algorithm based on Artificial Immune System

Jae-Won Yang, Kwee-Bo Sim, Dong-Wook Lee(Chungang Univ., KOREA), Dong-Il Seo(ETRI, KOREA)

●Intrusion Detection Algorithm based on Artificial Immune System
1. Introduction
2. Research Background
3. The adaptation algorithm of SYN flooding attack
4. SIMULATION
5. Conclusion
6.References

10:20 – 10:40 **TA04-5**

Stability Analysis and Design of a Fuzzy-Model-Based Controller in Switched Systems

Joo Won Kim, Jin Bae Park(Yonsei Univ., KOREA), Young Hoon Joo(Kunsan Nat'l Univ., KOREA)

●Introduction
●Preliminaries
●Switching problem in a hybrid system
●Design of a fuzzy-model-based controller
●An example
●Conclusion

10:40 – 11:00 **TA04-6**

Design of PWM-Based Fuzzy Controller for Nonlinear Systems

Dai Bum Cha, Kwang Lae Cho, Yeun Woo Lee, Young Hoon Joo(Kunsan Nat'l Univ., KOREA), Jin Bae Park(Yonsei Univ., KOREA)

●The duffing forced oscillation system.
●The picture is result of the computer simulation.
●Control input of the PWM controller.
●The solid line type is resulted by digital controller.
●The dotted line type is resulted by analogue controller.