FM01

Poster Session

09:00-11:00 **Chair1 : Hie sik Kim (Univ. of Seoul, Korea)**
Room : base 2nd Floor-Zillertal **Chair2 : Tae-Kyu Kwon (Chonbuk Nat'l Univ., Korea)**

FM01-49

Self Learning Fuzzy Sliding Mode Controller for Nonlinear System

Sam Jun Seo(Anyang Univ., KOREA), Dong Sik Kim(Soonchunhyang Univ., KOREA)

In variable structure control algorithms, The control law used to realized the desired sliding mode dynamics is discontinuous on the switching manifold. However, due to imperfections in switching, such as time delays, the system trajectory chatters instead of sliding along the switching manifold. This chattering is undesirable because it may excite unmodeled high frequency dynamics in the physical system. In this paper, to overcome this drawback a self-organizing fuzzy sliding mode control algorithm using gradient descent method is proposed. The proposed method has the characteristics which are viewed in conventional VSC, e.g. insensitivity to a class of disturbance, parameter variations and uncertainties in the sliding mode. To demonstrate its performance, the proposed control algorithm is applied to an inverted pendulum system. The results show that both alleviation of chattering and performance are achieved.

FM01-50

Newly Expanded and Truncated Learning Algorithm for Optimal Synthesis of Binary Neural Network

Ki-Young Yun, Jongwon Jeong(Donga Univ., KOREA), Sangkyu Sung(Department of Korea Aerospace Industries, KOREA), Joontark Lee(Donga Univ., KOREA)

FM01-51

A Design of Neural Network Predictive PID Controller for an Automatic Driving of Stacking Crane

Dong Seop Sohn, Jin Woo Lee, Kwon Soon Lee(Dong-A Univ., KOREA)