

# D-TMP01 Domestic Poster Session

13:00-13:50 Chair : Han Chang Soo (Hanyang Univ.)  
Room : Terrace(3F) Co-Chair : Kim Jeong-Ha ( Kookmin Univ.)

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13:00 – 13:50 D -TMP-25

## Estimation of Errors in Inertial Navigation Systems with GPS

Chang Yu Shin, Ha Seong Ki, Kim Eun Joo, Hong Sin Pyo, Lee Man Hyung  
(Pusan National Univ.)

In this paper, observability properties of a multiantenna GPS measurement system for the estimation of errors in INS are presented. It is shown that time-invariant INS error models are observable with measurements from at least three GPS antennas on the vehicle. There is at least one unobservable mode with two antennas. There are three unobservable modes with one antenna. It is also shown that time-varying INS error models are instantaneously observable with measurements from three GPS antennas. A numerical simulation results are given to verify the effectiveness of the multiantenna measurement system on the INS error estimation. In the simulation, a GPS measurement system is considered in which a trade-off between computational load and accuracy of estimation is achieved.

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13:00 – 13:50 D -TMP-27

## Design of Fuzzy-Neural Control Technique Using Automatic Cruise Control System of Mobile Robot

Jong-Soo Kim, Jun-Hwa Jang, Jin Lee, Sung-Hyung Han  
(Kyungnam Univ.), Dunk-Ki Han (ChoongAng Machine), Yong-Kyu Kim (Univ. Stuttgart)

This paper presents a new approach to the design of cruise control system of a mobile robot with two drive wheel. The proposed control scheme uses a Gaussian function as a unit function in the fuzzy-neural network, and back propagation algorithm to train the fuzzy-neural network controller in the framework of the specialized learning architecture. It is proposed a learning controller consisting of two neural network-fuzzy based on independent reasoning and a connection net with fixed weights to simply the neural networks-fuzzy. The performance of the proposed controller is shown by performing the computer simulation for trajectory tracking of the speed and azimuth of a mobile robot driven by two independent wheels.

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13:00 – 13:50 D -TMP-29

## Development of Preprocessor Program for Articulated Total Body

Lee Dong Jea, Son Kwon, Jeon Kyunam, (Pusan National Univ. )  
Choi Kyunghyun (Cheju Univ.)

Computer simulations are widely used to analyze passenger safety in traffic accidents. ATB (articulated total body ) is a computer simulation model developed to predict gross human body response to such dynamic environments as vehicle crashes and pilot ejections. ATB, whose code is open, has high flexibility and application capability that users can easily insert defined modules and functions. ATB is , however, inconvenient as it was coded in FORTRAN and it needs a formatted input file. Moreover, it takes much time to make input files and to modify coding errors. This study aims to increase user friendliness by adding a preprocessor program, WINATB(WINDOW ATB), to the conventional ATB. WINATB programmed in Visual C++ and OpenGL uses ATB IV as a dynamic solver ...

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13:00 – 13:50 D -TMP-26

## A Real-Time Control for a Dual Arm Robot Using Neural-Network with Dynamic Neurons

Kyung-Kyu Jeong, Sung-Hyun Han (Kyungnam Univ.), Young-Hee Jang (Pusan National Univ.), Kang-Doo Lee (Chinju College), Kyung-Yean Kim (Keoje Univ.)

This paper presents a new approach to the design of neural control system using digital signal processors in order to improve the precision and robustness. Robotic manipulators have become increasingly important in the field of flexible automation. High speed and high-precision trajectory tracking are indispensable capabilities for their versatile application. The need to meet demanding control requirement in increasingly complex dynamical control systems under significant uncertainties, leads toward design of intelligent manipulation robots. The TMS320C31 is used in implementing real time neural control to provide an enhanced motion control for robotic manipulators. In this control scheme, the networks introduced are neural nets with dynamic neurons, whose dynamics are distributed over all the network nodes.

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13:00 – 13:50 D -TMP-28

## Development of a Estimation Simulator and Dynamic Modeling for Moving Capability of Track Vehicle

Dong-Yeun Jeong, Sung-Il Kim, Sung-Hyun Han (Kyungnam Univ.),  
Kyung-Sik Lee, Yong-Tae Kim (Tonil Heavy Industry)

In this paper, we developed a Windows 98 version off-line programming system which can simulate a track vehicle model in 3D graphics space. The track vehicle was adopted as an objective model. The interface between users and the off-line program system in the Windows 98's graphic user interface environment was also studied. The developing language is Microsoft Visual C++. Graphic libraries, OpenGL, by Silicon Graphics, Inc. were utilized for 3D Graphics.

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13:00 – 13:50 D -TMP-30

## The Program Development for Real-Time Monitoring And Control of RF Output

Gang-wook Shin, Sung-Tak Hong, Jae-Rheen Yang  
(KOWACO)

The SSPA makes the power level of EIRP up to 16W, and compensates for temperature to the SSPA's maximum stability. The up and the down converters are dually converted like as individual synthesizers for selecting of independent transmit-receive transponder. The function of the up-converter is to convert the 70MHz IF signal modulated in the indoor unit modem into a 14.0 ~ 14.5 GHz Ku-band up-link signal to be sent to the antenna. The down-converter converts the 12.25 ~ 12.75 GHz Ku-band down-link signal or a trouble malfunction of SSPA may be a fatal factor to operation of the whole satellite communication network. Therefore, this study developed the remote monitoring and control program to monitor the SSPA's status before the problem occurs for stable operation of the system. This software .....

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