

# TE02

## Aerospace III

15:40-17:40

Room : Base 1st Floor-Intal

Chair1 : Jinyoung Suk ( Chungnam Univ., Korea )

Chair2 :

15:40 – 16:00

TE02-1

### Trajectory Optimization for An Aircraft with Genetic algorithm

Shigeki Miki, Hiroyuki Takano, Yoriaki Baba(Nat'l Defense Academy, JAPAN)

- Introduction
- Genetic Algorithm
- Optimal Control
- Simulation
- Conclusion

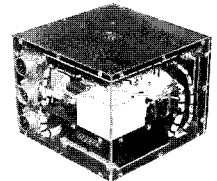
16:00 – 16:20

TE02-2

### Trade-off Study on the Performance of GPS/INS for Aviation Navigation

Changsun Yoo, Ieeki Ahn(KARI, KOREA), Sangjeong Lee(Chungnam Nat'l Univ., KOREA)

- Introduction of aviation navigation
- Integrated navigation algorithm
- Description of hardware system
- Ground test
- Flight test
- Conclusion



16:20 – 16:40

TE02-3

### Trajectory and Attitude Control for a Lunar-Lander Using a Reference Model

Akio Abe, Yuzo Shimada, Kenji Uchiyama(Nihon Univ., JAPAN)

1. Introduction
2. Dynamics of the lunar-lander
3. Nonlinear tracking control
4. Numerical simulation
5. Conclusions

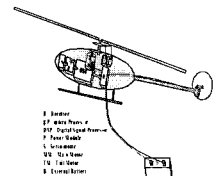
16:40 – 17:00

TE02-4

### Attitude Control of an Electrically Powered UAV Helicopter

Jong-Kwon Kim, Kyeum-Rae Cho(Pusan Nat'l Univ., KOREA), Soo-Hong Park (Dongseo Univ., KOREA), Ji-Hwan Shin(KAI Ltd., KOREA)

- Introduction of UAV Helicopter
- System Specification
- Dynamics of Small EP Helicopter
- Construction of Electrical System
- LQG Control Law
- Simulations
- Results and Analysis



17:00 – 17:20

TE02-5

### Real-Time Simulation Algorithm for an Aircraft and a Missile

Yukio Ueda, Yoriaki Baba, Hiroyuki Takano(Nat'l Defense Academy, JAPAN)

Some integration methods for the linear subsystems are examined and which algorithm is optimal for real-time simulation is considered. First, a number of typical integration methods for a linear time-invariant system are given. Then, the dynamic errors are shown both from the point of view of characteristic root errors and transfer function errors. After that we compute the dynamic errors of integration and choose the appropriate method for each system.

17:20 – 17:40

TE02-6

### Ground Test & Evaluation of an Unmanned Aerial Vehicle

Jinhyoung Kim, Jinyoung Suk(Chungnam Nat'l Univ., KOREA), Ilsik Kim(Uconsystem Ltd., KOREA)

UAV(Unmanned Aerial Vehicle) has become one of the most popular military/commercial aerial robots in the new millenium. In spite of all the advantages that UAVs inherently have, it is not an easy job to develop a UAV because it requires very systematic and complete approaches in full development envelop. The ground test & evaluation phase has the utmost importance in the sense that a well developed system can be best verified on the ground. In addition, many of the aircraft crashes in the flight tests were resulted from the incomplete development procedure.

In this research, a verification procedure of the whole airborne integrated system was conducted including the flight management sys...