

# TA03

## Computer Vision-Motion Control

09:00-11:00

Chair1 : Sung-Kee Park ( KIST, Korea )

Room : Base 1st Floor-Otztal

Chair2 :

09:00 – 09:20

TA03-1

### Moving object detection in image sequences from a mobile robot

Chang-kyu Lee, Tae-Yong Kuc(Sungkyunkwan Univ., KOREA)

1. Introduction
  2. Focus of Expansion
  3. Log-Polar Mapping
  4. Egomotion and Optical Flow
  5. Experimental Results
  6. Conclusion
- References



09:20 – 09:40

TA03-2

### A Study of Detection and Recognition of the Land Mark for Self-Localization of Autonomous Robot in the Robot Soccer Environment (ROBOSOT)

Yoon Heo, Tae Ho Choi(Kyungpook Nat'l Univ., KOREA)

- Introduction
- The environment of the RoboSot
- Extracting landmarks & feature points
- Experimental results
- Conclusion



09:40 – 10:00

TA03-3

### 3D multiple objects recognition using a disparity image

Hongpyo Park, Seungjoon Choi, Sungjin Kim, Sangchol Won(POSTECH, KOREA)

1. Introduction
2. Stereovision Algorithm
3. Superquadric Models
4. Recovery of Superquadric Models
5. Conclusions

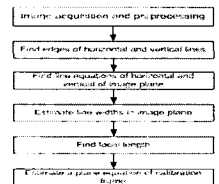
10:00 – 10:20

TA03-4

### A New Flexible Camera Calibration Method using the Projection Fluctuation Ratio of Different Line Widths

Seong Ryong Mun, HongSeok Jang, JunIk Jeong, DoHwan Rho, HoSun Lee(Chonbuk Nat'l Univ., KOREA)

1. Introduction
2. Basic Camera models and geometry
3. Projection of line widths
4. Camera calibration algorithm
5. Experimental results
6. Conclusions and future work



10:20 – 10:40

TA03-5

### Indoor Environment Modeling with Stereo Camera for Mobile Robot Navigation

Sung-Kee Park, Jong-Suk Choi, Munsang Kim, Chong-won Lee(KIST, KOREA)

In this paper we propose a new method for modeling indoor environment with stereo camera and suggest a localization method for mobile robot navigation on the basis of it. From the viewpoint of easiness in map building and exclusion of artificiality, the main idea of this paper is that environment is represented as global topological map and each node has omni-directional metric and color information by using stereo camera and pan/tilt mechanism. We use the depth and color information itself in image pixel as feature for environmental abstraction. In addition, we use only the depth and color information at horizontal centerline in image, where optical axis is passing. The usefulness of this m...

10:40 – 11:00

TA03-6

### Obstacle Avoidance and Lane Recognition for the Directional Control of Unmanned Vehicle.

Chang Man Kim, Hee Chang Moon, Sang Gyum Kim, Jung Ha Kim(Kookmin Univ., KOREA)

1. Introduction
  2. System Configuration
  - 2.1 Control System
  - 2.1.1 Longitudinal control
  - 2.1.2 Lateral control
  - 2.2 Sensor System
  - 2.2.1 Photo interrupt
  - 2.2.2 Ultrasonic sensor
  - 2.3 Vision system
  - 2.4 Communication system
  - 2.4.1 Data communication
  - 2.4.2 Image Communication
  3. Test and Result
  - 3.1 Vision test
  - 3.2 Ultrasonic sensor test
  4. Conclulsion
- Acknowledgment  
References\