D-FA07 Computer Vision and Image Processing 3

09:00-11:00 **Chair : Han Sung-Hyun (Kyungnam National Univ.)**
Room : 4232 **Co-Chair : Ryu Young Kee (Sunmoon Univ)**

09:00 – 09:20 **D-FA07-1**

The study of Method for the Diagnosis of Transformers Trouble

Song Jae Tae, Jeong Seung Cheol, Choi Hyun Seob
and Park Poo Gyeon(POSTECH)

In this paper, we suggest a new distribution model for a single phase transformer which is different from the existing model which was modeled for only primary parts, but new distribution model is modeled for primary and secondary parts. Using this model, we simulate various faults of the transformer to know how the transfer function vary from the normal one, i.e., the trend of the variation of transfer function. As an another approach, we measure the voltage and current of a three phase transformer while various faults are made at the transformer. From the simualation of the model and experiment, we fine some trends of the variation of transfer function.

09:20 – 09:40 **D-FA07-2**

Development of a Precision Distance Sensor by Using One -dimensional CCD

Jang Se-Jung, Boo Kwang-Suck, Lim Sung-Hyun (Inje University)
and Lee Seung-Young

This research describes a development of laser distance sensor with precise resolution even in the case that the object surface has some curvature. There are typical two methods in measuring the distance by using laser light source, so called time of flight and optic-triangular methods. Both methods have an advantage and a disadvantage each other. In general, the time of flight method produces wide range of the measurement, but low accuracy. The other method is vice versa. In this research, the optic-triangular methods with one-dimensional CCD cell are proposed to obtain the precise distance measure from the sensor the surface of the curved object...

09:40 – 10:00 **D-FA07-3**

Development of an Inspection System of Contact Light Emitting Device for Quality Control

Lee Jun Ho, Kwon Hyong Kee and Ryu Young Kee
(Sunmoon University)

CLED (Contact Light Emitting Device) has three layers consisting of a transparent electrode, a light emitting layer and a substrate. When the substrate of the CLED comes in contact with a fingerprint under AC input voltage, it makes an electric field between the fingerprint and the device. Due to the electric field, the light is emitted along the ridgeline of the fingerprint. The intensity along the ridge on the surface of the CLED increase in proportion to the electric field. To achieve uniform performance of fingerprint verification devices, inspection system of CLED for quality control were required. In this research, we proposed the factors for quality controls such as dimensions of the CLED, uniformity...

10:00 – 10:20 **D-FA07-4**

Inspection System of Welding Bead and Chamfer by means of Laser Vision

Lee Junsok, Im Pilju, Park Youngjun and Kim Jaehoon
(Samsung Heavy Industries)

An inspection system, composed of sensor head and controller, is presented which is a 3-D laser vision system using principles of optical triangulation for weld quality and chamfer quality. The sensor head id composed of laser diode, micro CCD camera, filter and several optical components. This systems can be used in welding bead and under-cut inspection and chamfer quality inspection as well. It is mech more convenient to use and the inspection time is to be greatly shortened compared with conventional inspection method. Furthermore, data saved in controller can be used for statistics afterwards. This system has been beign used in Koje Shipyard of Samsung Heavy Industries and the need is being increased.

10:20 – 10:40 **D-FA07-5**

An Automatic Inspection of the Surface Outlook of High Speed Moving Plate by Using One Dimensional CCD Camera

Lim Sung-Hyun and Boo kwang-Suck
(Inje University)

This paper describes an image processing method for inspecting the surface outlook of high speed moving plates. Noise free image and a new real time processing methods are required to inspect the surface outlook of the high speed moving plates in real time. It is difficult to get a noise free image due to a signal noise, a light noise and background image in typical industrial factory. Thus, pre-processing techniques should be required to get a good image and produce so many time steps to proceed the image data. The objective of this research is to get image on the surface of the moving plates with a speed of 1m/sec and to detect some defaults on the surface image. So, the pre-processing techniques...