

PROCEEDINGS OF SPIE

Optomechatronic Systems Control III

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Editors

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Contents

v	Conference Committee
vii	Symposium Committee
ix	Introduction

SESSION 1 INVITED SESSION 1: VISUAL SERVOING

- 6719 02 **Stability issues in sensor switching visual servoing** [6719-01]
K. Kühnlenz, M. Buss, Technische Univ. München (Germany)
- 6719 03 **Visual servoing of a planar overactuated parallel robot** [6719-02]
R. Garrido, A. Soria, CINVESTAV-IPN (Mexico); G. Loreto, ITESU (Mexico)
- 6719 04 **An active zooming method for simultaneous control of field-of-view and depth-of-field in vision-based microassembly** [6719-03]
X. Tao, Korea Advanced Institute of Science and Technology (South Korea);
F. Janabi-Sharifi, Ryerson Univ. (Canada); H. Cho, Korea Advanced Institute of Science and Technology (South Korea)
- 6719 05 **Direct path planning in image plane and tracking for visual servoing** [6719-04]
J. Wang, Xi'an Jiaotong Univ. (China); A. Liu, Xi'an Satellite Control Ctr. (China); H. Cho, Korea Advanced Institute of Science and Technology (South Korea)
- 6719 06 **Visual servoing of a 5-DOF mobile manipulator using a catadioptric vision system** [6719-05]
Y. Zhang, Simon Fraser Univ. (Canada); M. Mehrandezh, Univ. of Regina (Canada)
- 6719 07 **A measurement system based on visual servoing and error correction method using multiple CCD camera module and structured target for three dimensional measurement** [6719-06]
D.-K. Noh, S.-H. Kim, Y.-J. Park, D. J. Choi, Samsung Heavy Industries (South Korea)
- 6719 08 **Precision displacement measurement using a modulating ESPI** [6719-09]
S. J. Kim, Y. J. Kang, D. P. Hong, Chon-buk National Univ. (South Korea); K. S. Kim, ChoSun Univ. (South Korea); N. K. Park, W. J. Ryu, Chon-buk National Univ. (South Korea); M. Y. Choi, Korea Research Institute of Standards and Science (South Korea)

SESSION 2 OPTOMECHATRONICS FOR MOTION DETECTION AND CONTROL

- 6719 0A **Differential position feedback for compensating the tracking error in a motion control system** [6719-19]
C. Juan, Changchun Institute of Optics, Fine Mechanics and Physics (China) and Changchun Univ. of Technology (China); D. Erbao, China Science and Technology Univ. (China); C. Tao, Changchun Institute of Optics, Fine Mechanics and Physics (China)
- 6719 0B **An optical system for monitoring the movement of a micro multipede** [6719-20]
D. T. Pham, Cardiff Univ. (United Kingdom); V. Djakov, Rutherford Appleton Lab. (United Kingdom); M. S. Packianather, Z. Wang, Cardiff Univ. (United Kingdom)

- 6719 0C **Design and modeling of fiber-optic displacement sensor with sub-nanometer resolution and long range** [6719-21]
A. Rostami, M. Noshad, H. Hedayati, A. Ghanbari, Univ. of Tabriz (Iran); F. Janabi-Sharifi, Ryerson Univ. (Canada)
- 6719 0D **The VST telescope optomechatronic control system** [6719-22]
P. Schipani, M. Brescia, M. Capaccioli, D. Mancini, L. Marty, C. Molfese, F. Perrotta, INAF-Istituto Nazionale di Astrofisica (Italy)
- 6719 0F **A proposal for design of high-resolution and integrated 2-D array of ultrasound detector for imaging purposes based on optical MEMS** [6719-11]
A. Rostami, S. S. Mirshafieyan, A. Ghanbari, Univ. of Tabriz (Iran); F. Janabi Sharifi, Univ. of Tabriz (Iran) and Ryerson Univ. (Canada)

SESSION 3 INVITED SESSION 2: INTELLIGENT VISION IN ROBOTICS AND ITS APPLICATIONS

- 6719 0G **Recognition of 3D objects for autonomous mobile robot's navigation in automated shipbuilding** [6719-13]
H. Lee, H. Cho, Korea Advanced Institute of Science and Technology (South Korea)
- 6719 0H **Visual guide power assist system to adapt operators' motion** [6719-14]
S. Kawai, T. Tanaka, S. Kaneko, Hokkaido Univ. (Japan)
- 6719 0I **Navigation control for mobile robot based on vision and ultrasonic sensors** [6719-15]
S. Takahashi, Kagawa Univ. (Japan); S. Nara, Nara Electric Heavy Industries, Ltd. (Japan)
- 6719 0J **3-dimensional measurement of cable configuration being based on feature tracking motion stereo** [6719-16]
Y. Domaie, Hokkaido Univ. (Japan); H. Okuda, Mitsubishi Electric Corp. (Japan); H. Takauji, S. Kaneko, T. Tanaka, Hokkaido Univ. (Japan)
- 6719 0K **Relative stereo 3-D vision sensor and its application for nursery plant transplanting** [6719-17]
S. Hata, Kagawa Univ. (Japan); J. Hayashi, S. Takahashi, Kagawa Univ (Japan); H. Hojo, PUREX Co. (Japan)
- 6719 0L **Variable view imaging system and its application in vision based microassembly** [6719-18]
X. Tao, H. Cho, Korea Advanced Institute of Science and Technology (South Korea)
- 6719 0M **CameraMan: nanohandling robot cell inside a scanning electron microscope with flexible vision feedback** [6719-08]
D. Jasper, S. Fatikow, Univ. of Oldenburg (Germany)
- 6719 0N **Control system for an AFM based nanomanipulation station** [6719-12]
F. Krohs, S. Hagemann, Univ. of Oldenburg (Germany); J. Otero, M. Puig-Vidal, Univ. of Barcelona (Spain); S. Fatikow, Univ. of Oldenburg (Germany)

Author Index

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1 Invited Session 1: Visual Servoing

Farrokh Janabi-Sharifi, Ryerson University (Canada) and University of Tabriz (Iran)

- 2 Optomechatronics for Motion Detection and Control
Hyungsuck Cho, Korea Advanced Institute of Science and
Technology (South Korea)
- 3 Invited Session 2: Intelligent Vision in Robotics and Its Applications
Satoru Takahashi, Kagawa University (Japan)

International Symposium on Optomechatronic Technologies ISOT 2007

In recent years, most engineered products, processes, and systems have been evolving towards higher functionality, flexibility, intelligence, and miniaturization. This trend is stimulated by the ongoing fusion between optical and mechatronic technologies leading not only to enhanced performance but also to the creation of new, innovative functionalities. Because of its synergistic effect, the integration of these engineering fields, labeled optomechatronic technology, is becoming a major driving force to future enabling technologies.

The objective of this symposium is to gather researchers and engineers working in the field of optomechatronics and to provide them with a forum for discussion for exchanging their points of view and experience and sharing their research results through high quality peer reviewed papers.

The symposium consists of five conferences:

- 1) **Optomechatronic Actuators and Manipulation**
- 2) **Optomechatronic Sensors and Instrumentation**
- 3) **Optomechatronic Micro / Nano Devices and Components**
- 4) **Optomechatronic Computer-Vision Systems**
- 5) **Optomechatronic Systems Control**

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Introduction

Optomechatronic control systems deal with the control of integrated optical and mechatronic systems to achieve high performance and functionality, such as high precision, rapid information processing, and intelligent functions. These control systems offer significant potential advantages over the conventional control systems in terms of power, signal attenuation, bandwidth, flow of information, electromagnetic interference immunity, and safety. However, control of optomechatronic systems involves serious challenges due to inherent system non-linearities, uncertainties, time-varying properties, and disturbances. Addressing such control problems is vital for future advancement and the advent of new applications of optomechatronic technology. In order to strengthen the science and engineering of optomechatronic control systems it is essential that researchers and engineers communicate and coordinate their work.

The purpose of this conference is to promote research activities in various areas of design and implementation of optomechatronic control systems by providing a forum for the exchange of ideas, presentation of technological achievements, and discussion of future directions.

Sergej Fatikow

