

**20th Annual International
Conference on Mechatronics
and Machine Vision in Practice
(M2VIP 2013)**

**Ankara, Turkey
20 September 2013**

Editors:

**Aylin Konez Erođlu
Çiğdem Turhan**

**Zühal Erden
Abdulkadir Erden**

ISBN: 978-1-62993-313-9

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2013) by Mechatronics and Machine Vision in Practice
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact Mechatronics and Machine Vision in Practice
at the address below.

Mechatronics and Machine Vision in Practice
FOES, University of South Queensland
Toowoomba QLD 4350 Australia

johnbill@usq.edu.au

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

AUTONOMOUS TRAJECTORY TRACKING AND IMAGING VIA A QUADROTOR TYPE UAV: A SYSTEM INTEGRATION APPROACH	1
<i>Mehmet Önder Efe, Mustafa Kaya, Munir Elfarra, Ridvan Özdemir</i>	
EXPRESSIVE EEG SIGNAL VARIABILITY IDENTIFICATION IN ROBOTIC CONTROL COMMAND DEVELOPMENT	9
<i>Chiemela Onunka, Glen Bright, Riaan Stopforth</i>	
A MECHATRONIC LOAD TESTING EQUIPMENT	17
<i>H. Orhan Yildiran, Cahit Gürel</i>	
DISTURBANCE REJECTION CONTROL OF A QUADROTOR EQUIPPED WITH A 2 DOF MANUPILATOR	26
<i>Mete Aydemir, Kutluk Bilge Arıkan, Bülent İrfanoğlu</i>	
A SOFT STARTING APPLICATION WITH FUZZY TYPE II FOR HUB MOTORS	33
<i>Muammer Albayrak, Raif Bayır</i>	
DEVELOPMENT OF A LOW COST RADIO CONTROLLER FOR TELE OPERATION SYSTEMS: CRANE CONTROLLER DESIGN AS AN INDUSTRY SPONSORED UNDERGRADUATE RESEARCH	40
<i>Gökтуg Kaynaköz, Birkan Dagdeviren, K. Yavuz Kapusuz, Ali Kara</i>	
CHATTER DETECTION USING VIBRATIONAL AND ACOUSTIC EMISSIONS IN TURNING PROCESS	46
<i>Suleyman Buyukkocak, Sener Kilic, Mehmet Bulent Ozer, Hakki Ozgur Unver</i>	
DESIGN AND TESTING OF AN EARTHQUAKE SIMULATION SYSTEM	53
<i>Süleyman Büyükkocak, Çağrı Koç, Seyma Nur Çizmeli, Çağrı Gürpınar, M. Bülent Özer</i>	
DESIGN AND INITIAL FLIGHT TESTS OF A HOLONOMIC QUADROTOR UAV WITH SUB- ROTOR CONTROL SURFACES	63
<i>Ertuğrul Çetinsoy</i>	
GRAK: A VISUAL ROBOTICS TOOLBOX USING MATLAB GRAPHICAL USER INTERFACE	70
<i>Sibel Kaplan Yıldırım, Hüseyin Canbolat</i>	
EXPERIMENTAL INVESTIGATION OF A MAGNETORHEOLOGICAL FLUID DAMPER WITH PERMANENT MAGNET FOR HAPTIC FINGER GRASPING	78
<i>Okan Topçu, Mehmet Murat Aygün, Özgür Çöllü, Yigit Tascioğlu</i>	
A COMPARATIVE STUDY ON DISTANCE METRICS IN SELF-SUPERVISED UNSTRUCTURED ROAD DETECTION DOMAIN	83
<i>Kadri Bugra Ozutemiz, Akif Hacinecipoglu, A. Bugra Koku, E. İlhan Konukseven</i>	
OPEN ARCHITECTURE CONTROLLER FOR MODULAR RECONFIGURABLE MACHINE TOOL	89
<i>A. Amra, G. Bright, J. Padayachee</i>	
ORIENTATION TECHNIQUES OF MULTI-ROBOT SYSTEM WITH SWARM INTELLIGENCE	98
<i>Fuad Aliew, Furkan Kaplan, Süleyman Alper Kale</i>	
DEVELOPING AN ANALYSIS PROCESS FOR BIOLOGICAL SYSTEMS TO DESIGN BIOROBOTS - A CASE STUDY OF HUMAN HAND GRIPPING MOTION	103
<i>Aylin Konez Eroglu, Zühal Erden, Abdulkadir Erden</i>	
CONCEPTUAL DESIGN OF A ROSE HARVESTING ROBOT FOR GREENHOUSES	111
<i>Cahit Gürel, Abdulkadir Erden</i>	
FACE DETECTION ALGORITHM WITH FACIAL FEATURE EXTRACTION FOR FACE RECOGNITION SYSTEM	117
<i>Cahit Gürel, Abdulkadir Erden</i>	
ILLUMINATION INVARIANT FACE RECOGNITION USING PRINCIPAL COMPONENT ANALYSIS – AN OVERVIEW	124
<i>Çağrı Kaymak, Rüya Sarici, Aysegül Uçar</i>	
SIMULATING THE KINEMATICS AND MOTIONS OF ROBOTIC MANIPULATORS USING 3D GAME DEVELOPMENT TOOLS	134
<i>Samuel N. Cubero, John Billingsley</i>	

A HISTOGRAM-BASED THRESHOLDING METHOD FOR EXTRACTING NON-URBAN ROADS FROM SATELLITE IMAGES.....	147
<i>Matin Ghaziani, Yaser Mohamadi, Erhan Ilhan Konukseven, A. Bugra Koku</i>	
DEVELOPMENT OF A SINGLE DEGREE OF FREEDOM INERTIAL MEASUREMENT SYSTEM.....	153
<i>Sertaç Emre Kara, Hassan Golmohammedzadeh, Kutluk Bilge Arikan</i>	
SPECIAL OVERVIEW OF SPACE AND SPACE MECHATRONICS	159
<i>Sedat Nazibilek</i>	
Author Index	