

Contents

Education

Emergent Behaviour Real-time Programming of a Six-Legged Omni-Directional Mobile Robot: <i>Planning of Viennese Waltz Behaviour</i> <i>Frank Nickols</i>	3
The Hong Kong Underwater Robot Challenge <i>Robin Bradbeer</i>	17
Dynamics and Control of a VTOL Quad-Thrust Aerial Robot <i>Joshua N. Portlock and Samuel N. Cubero</i>	27
Project-oriented Low Cost Autonomous Underwater Vehicle with Servo-visual Control for Mechatronics Curricula <i>C. A. Cruz-Villar, V. Parra-Vega, and A. Rodriguez-Angeles</i>	41
Coordination in Mechatronic Engineering Work <i>James Trevelyan</i>	51

Vision Techniques

A Vision System for Depth Perception that Uses Inertial Sensing and Motion Parallax <i>Vlatko Bećanović and Xue-Bing Wang</i>	65
Rate Shape Identification Based on Particle Swarm Optimization <i>P.W.M. Tsang and T.Y.Y. Yuen</i>	77
Advanced 3D Imaging Technology for Autonomous Manufacturing Systems <i>A. Pichler, H. Bauer, C. Eberst, C. Heindl, J. Minichberger</i>	87
Vision Based Person Tracking and Following in Unstructured Environments <i>Mahmoud Tarokh and John Kuo</i>	99

Simple, Robust and Accurate Head-Pose Tracking Using a Single Camera.....	111
<i>Simon Meers, Koren Ward and Ian Piper</i>	

Vision Applications

Machine Vision for Beer Keg Asset Management	125
<i>Michael Lees, Duncan Campbell, Andrew Keir</i>	
Millimetre Wave Radar Visualisation System: Practical Approach to Transforming Mining Operations	139
<i>E. Widzyk-Capehart, G. Brooker, S. Scheduling, A. Maclean, R. Hennessy, C. Lobsey and M. Sivadurai</i>	
An Underwater Camera and Instrumentation System for Monitoring the Undersea Environment	167
<i>Kenneth K.K. Ku, Robin Bradbeer and Katherine Lam</i>	
Visual Position Estimation for Automatic Landing of a Tail-Sitter Vertical Takeoff and Landing Unmanned Air Vehicle.....	181
<i>Allen C. Tsai, Peter W. Gibbens and R. Hugh Stone</i>	
Minutiae-based Fingerprint Alignment Using Phase Correlation.....	193
<i>Weiping Chen and Yongsheng Gao</i>	

Robotic Techniques

A Snake-like Robot for Inspection Tasks	201
<i>Bin Li, Li Chen and Yang Wang</i>	
Modelling Pneumatic Muscles as Hydraulic Muscles for Use as an Underwater Actuator	209
<i>Kenneth K.K. Ku and Robin Bradbeer</i>	
Automated Tactile Sensory Perception of Contact Using the Distributive Approach.....	219
<i>X. Ma, P. Tongpadungrod and P.N. Brett</i>	
Blind Search Inverse Kinematics for Controlling All Types of Serial-link Robot Arms	229
<i>Samuel N. Cubero</i>	

Medical Applications

Distributive Tactile Sensing Applied to Discriminate Contact and Motion of a Flexible Digit in Invasive Clinical Environments.....	247
<i>Betty Tam, Peter Brett, David Holding, and Mansel Griffiths</i>	
Intelligent Approach to Cordblood Collection.....	255
<i>S.L. Chen, K.K. Tan, S.N. Huang and K.Z. Tang</i>	
An Autonomous Surgical Robot Applied in Practice	261
<i>P.N. Brett, R.P. Taylor, D. Proops, M.V. Griffiths and C. Coulson</i>	
Development of an Intelligent Physiotherapy System	267
<i>S.L. Chen, W.B. Lai, T.H. Lee and K.K. Tan</i>	
Visual Prostheses for the Blind: A Framework for Information Presentation	275
<i>Jason Dowling, Wageeh Boles and Anthony Maeder</i>	
Computer-based Method of Determining the Path of a HIFU Beam Through Tissue Layers from Medical Images to Improve Cancer Treatment.....	289
<i>E. McCarthy and S. Pather</i>	

Agricultural Applications

On-the-go Machine Vision Sensing of Cotton Plant Geometric Parameters: First Results	305
<i>Cheryl McCarthy, Nigel Hancock and Steven Raine</i>	
Robotics for Agricultural Systems	313
<i>Mario M. Foglia, Angelo Gentile, and Giulio Reina</i>	
More Machine Vision Applications in the NCEA	333
<i>John Billingsley</i>	
Authors	345
Index	347



<http://www.springer.com/978-3-540-74026-1>

Mechatronics and Machine Vision in Practice

Billingsley, J.; Bradbeer, R. (Eds.)

2008, IX, 348 p., Hardcover

ISBN: 978-3-540-74026-1