

2008 IEEE Workshop on Advanced Robotics and its Social Impacts

**Taipei, Taiwan
23-25 August 2008**



IEEE Catalog Number:
ISBN 13:

CFP08ARS-PRT
978-1-4244-2674-4

Table of Contents

Piezo-Electric Driver of Ultrasonic Motor on the Humanoid Robot.....	1
<i>Ching-Kuo Wang, Han-Pang Huang, Kevin Chien</i>	
Development of the Joint Attention with a New Face Tracking Method for Multiple People.....	7
<i>Han-Pang Huang, Jia-Hong Chen, Hung-Jing Jian</i>	
Investigation on Gait Pattern Planning and Dynamic Balancing for Biped Robot.....	13
<i>Thong-Shing Hwang, Fong-Chen Kao, Sheng-Ping Hsieh, Jr-Ruei Lin</i>	
Enhanced Development and Stability Analysis of a New Stair-Climbing Robotic Wheelchair.....	19
<i>Chun-Ta Chen, Hoang-Vuong Pham</i>	
Autonomous Security Robot Services Using Eye-in-Hand Visual Servo System.....	25
<i>R. C. Luo, C. H. Tsai, C. C. Lai, C. M. Chang</i>	
Probabilistic Structure from Sound and Probabilistic Sound Source Localization.....	31
<i>Chi-Hao Lin, Chieh-Chih WangD</i>	
Robot - Human Face Tracking and Recognition Using Relative Affine Structure.....	37
<i>Ren C. Luo, Chung T. Liao, Yi J. Chen</i>	
Indoor Localization Using Line Based Map for Autonomous Mobile Robot.....	43
<i>R. C. Luo, Jian-Xian Li, Cheng-T Chen</i>	
A Novel Design and Analysis of a 3-DOF Parallel Manipulator for Micro/Nano Manipulation.....	49
<i>Yuan Yun, Yangmin Li</i>	
Local Sensing Based Hunting for Multiple Robots.....	55
<i>Yuan Yuan, Zhiqiang Cao, Zengguang Hou, Chao Zhou, Min Tan</i>	
Nonlinear Dynamic Contouring Control for Biped Robot Walking.....	59
<i>Ren.C.Luo, Po-Jen Cheng</i>	
High-speed 3-D Machine Vision Employing Fourier Transform Profilometry with Digital Tilting-Fringe Projection.....	65
<i>Liang-Chia Chen, Xuan-Loc Nguyen, Hsuan-Wei Ho</i>	
Autonomous Navigation of an Indoor Tour Guide Robot.....	71
<i>Ching-Chih Tsai, Shu-Min Shish, Hsu-Chih Huang, Min-Yu Wang, Chih Chung Lee</i>	
Weakly Interacting Object Tracking in Indoor Environments.....	77
<i>Kao-Wei Wan, Chieh-Chih WangD, Tu T. Ton</i>	
Simulation and Characterization of a CMOS-MEMS Gyroscope with Parasitic-Insensitive Sensing.....	83
<i>Ming Hui Chang, Han Pang Huang</i>	
Visual Servo Control of a Three Degree of Freedom Robotic Arm System.....	89
<i>Ho-Chung Chang, Ta-Ming Shih</i>	
Tanbot: A Mobile Self-Reconfigurable Robot Enhanced with Embedded Positioning Module.....	95
<i>Ming Zhong, Wei Guo, Man-tian Li, Ji-an Xu</i>	
Robust Joint-Model-Based Control for Constrained Robots.....	100
<i>Chen-Tien Chang, Han-Pang Huang</i>	
Design of a Six Legged Wall-Climbing Robot.....	106
<i>Wei Guo, Ming Zhong, Man-tian Li, Yang Li</i>	
An Autonomic Behavior-Based Software Architecture for Mobile Manipulator.....	110
<i>Shu Huang, Erwin Aertbelien, Hendrik Van Brussel</i>	
Boundary Following in Unknown Polygonal Environment Based on Fast Marching Method.....	116
<i>Chia Hsun Chiang, Jing-Sin Liu</i>	

Table of Contents

Service-Based Simulator for Security Robot	122
<i>Wei-Han Hung, Peter Liu, Shih-Chung Kang</i>	
Three-dimensional tactile sensor with thin and soft elastic body	125
<i>Kiyoshi Hoshino, Daisuke Mori</i>	
Control Method of Air Cylinder Actuator Utilizing Common Bias Pressure	131
<i>Kiyoshi Hoshino, Weragala Don Gayan Krishantha</i>	
Development of a Module Based Platform for Mobile Robots	137
<i>Kuo L. Su, Jr H. Guo, Sheng V. Shiau</i>	
Goal-Directed Pedestrian Model for Long-Term Motion Prediction with Application to Robot Motion Planning	143
<i>Hsiao Chieh Yen, Han Pang Huang, Shu Yun Chung</i>	
Roboid Studio: A Design Framework for Thin-Client Network Robots	149
<i>Kyoung Jin Kim, Il Hong Suh, Kwang-Hyun Park</i>	
MTBF-improvement of Whole Human Genome Micro-array Automated Hybridization Platform	155
<i>Jinq-Yu Jiang, Chia-Chun Chen, Jie-Len Huang, Chun-Hung Huang, Hung-Ju Su</i>	
Realization of Humanoid Service Robotic System	161
<i>Chih-Lyang Hwang, Han-Chen Wu, Nien-Wen Lu, Ming-Lung Lin, Chun-Hao Huang, Ting-Chia Hsu, I-Chiao Luo, Hsien-Ju Chou</i>	
Motion Planning and Control of Interactive Humanoid Robotic Arms	167
<i>Chung-Hsien Kuo, Yu-Wei Lai, Kuo-Wei Chiu, Shih-Tseng Lee</i>	
Robotics Human Tracking System Through Wireless Pyroelectric Sensor System	173
<i>Yi Huei, Jhu Ren C. Luo, Ogst Chen</i>	
Design and Implementation of an Intelligent Robotic Fish	179
<i>Shun-Chieh Hung, Chang-Chih Liu, An-Chih Tsai, Ta-Te Lin</i>	
Sensor Fusion in a SMA-based Hexapod Bio-mimetic Robot	184
<i>Shu-Hung Liu, Tse-Shih Huang, Jia-Yush Yen</i>	
A Bio-mimetic Snake-like Robot: Sensor Based Gait Control	190
<i>Tito Lu Tang Chen, Shu-Hung Liu, Jia-Yush Yen</i>	
T-S Fuzzy-Neural Control for Robot Manipulators	196
<i>Wei-Yen Wang, Yi-Hsing Chien, Yih-Guang Leu, Zheng-Hao Lee, Tsu-Tian Lee</i>	
Robots with Object-oriented Peripheral Modules Controlled by a Personal Single Board Computer (PSBC)	202
<i>Chuan-Hsi Liu, Hung-Wen Hsu, Jen-Yang Chen, Jenyi Chao, Hans Pao, Jerry Chang</i>	
Learning Robotics in Interactive Web-based Environments by PBL	206
<i>Min Jou, Chien-Pen Chuang, Din-Wu Wu, Shih-Chi Yang</i>	
Adaptive Fuzzy Controller Design for Biped Robotic Systems	212
<i>Wen-Shyong Yu</i>	
Planned Navigation of a Self-balancing Autonomous Service Robot	218
<i>Ching-Chih Tsai, Cheng-Kai Chan, Yen-Hau Fan</i>	
Implementation of Obstacle Avoidance and ZigBee Control Functions for Omni Directional Mobile Robot	224
<i>Kuo-Huang Lin, Hsin-Sheng Lee, Wei-Ting Chen</i>	
Object Tracking - An ART Based Phase Filtering Approach	229
<i>Kao-Shing Hwang, Jeng-Yih Chiou</i>	
An Automatic Golf Head Robotic Welding System Using 3D Machine Vision System	233
<i>Ming J. Tsai, Nai-Jun Ann</i>	

Table of Contents

Q-learning in Multi-Agent Cooperation	239
<i>Kao Shing Hwang, Yu-Jen Chen, Tzung-Feng Lin</i>	
Design and Implementation of a Stair-Climbing Robot.....	245
<i>Ming-Shyan Wang, Yi-Ming Tu</i>	
Design and Implementation of Penalty Kick Function for Small-Sized Humanoid Robot by using FPGA	251
<i>Chun-Ming Chang, Ming Feng Lu, Chun-Yang Hu, Shao-Wei Lai, Shao-Hsien Liu, Yu-Te Su, Tzuu-Hseng S. Li</i>	
Sound Source Tracking and Speech Enhancement by Microphone Array on an Embedded Dual-core Processor Platform	257
<i>Jwu-Sheng Hu, Chi-Yang Huang, Chia-Hsing Yang, Chen-Kang Wang, Ming-Tang Lee</i>	
Sound Source Localization by Microphone Array on a Mobile Robot Using Eigen-Structure Based Generalized Cross Correlation	263
<i>Jwu-Sheng Hu, Chia-Hsing Yang, Cheng-Kang Wang</i>	
Efficiency on Snake Robot Locomotion with Constant and Variable Bending Angles	269
<i>Kai-Hsiang Chang, Yung-Yaw Chen</i>	
Navigation of a Wheeled Mobile Robot in Indoor Environment by Potential Field Based-Fuzzy Logic Method.....	274
<i>Guan-Hao Li, Chih-Fu Chang, Li-Chen Fu</i>	