Table of Contents

Thursday, December 8, 2	20 1	U
-------------------------	-------------	---

Friday, December 9, 2011

Saturday, December 10, 2011

Thursday, December 8, 2011

TA1-1	: Interfaces for Teleoperations	
	Transparent Object Detection Using Color Image and Laser Reflectance Image for Mobile Manipulator Zhong LEI, Kazunori OHNO, Masanobu TSUBOTA, Eijiro TAKEUCHI, Satoshi	1
	A Novel Vision System Consists of Two Heterogeneous Cameras to Enlarge Field of View in Horizontal and Vertical for Remote Control of Mobile Robot Sho'ji SUZUKI	8
	Frequency Modulation Based Vibrotactile Feedback versus Visual Feedback in a Multimodal Interface for 3D Pointing Tasks in Teleoperation Ryad Chellali, Huynh-Phong pham	14
	Motion Generation for Human-Robot Collaborative Pick and Place based on Non- obstructing Strategy Ryo Hanai, Ryosuke Oya, Tamon Izawa, Masayuki Inaba	20
	Haptic Interactive Telerobotics Control Architecture With Iterative Solving Of Inverse Jan Bruder, Denis Klimentjew, Jianwei Zhang	26
TA1-2	2: Medical Robotics I	
	Development of a Kind of Robotic Catheter Manipulation System Nan Xiao, Shuxiang Guo, Jian Guo, Xufeng Xiao, Takashi Tamiya	32
	A comanipulation device for orthopedic surgery that generates geometrical constraints with real-time registration on moving bones Vincent Françoise, Anis Sahbani, Guillaume Morel	38
	Interior Point-based Method for Surgical Planning and Risk Analysis of Robot-assisted Liver Tumor Coagulation Therapy System Shaoli Liu, Jing Xu, Xiangdong Yang, Ken Chen	44
	Stepwise Process of Clinical Trials in Safety-Conscious Development of Human Koji Hasebe, Hiroaki Kawamoto, Akira Matsushita, Kiyotaka Kamibayashi, Yoshiyuki	50
	Compatibility test on lower-extremity motion simulator to fMRI Takahiro Ikeda, Akira Matsushita, Kosaku Saotome, Yasuhisa Hasegawa, Yoshiyuki	56
TA1-3	3: Walking Robots I	
	Analyzing of Compensated Strategy in Impaired Walking Using a Humanoid Robot Naofumi Miura	62
	Adaptive Gait for Dynamic Rotational Walking Motion by ASTERISK	68

Chayooth Theeravithayangkura, Tomohito Takubo, Kenichi Ohara, Yasushi Mae,

A Real Time Path Generator for Fast Motion of a Biped Carrying Different Payloads Saeed Mansouri, Mohammad Jafar Sadigh, Tara Farizeh	74
Analysis Of Time Zero Reset Method for Virtual Slop Walking Youbin Qiu, Mingguo Zhao	80
Analysis and Experiment of Flat-Footed Passive Dynamic Walker with Ankle Inerter Yuta Hanazawa, Hiroyuki Suda, Masaki Yamakita	86
TA1-4: Soft Robots	
Modelling of Multisection Bionic Manipulator:application to RobotinoXT Coralie Escande, Pushparaj Mani Pathak, Rochdi Merzouki, Vincent Coelen	92
A Novel Soft Robot with Three Locomotion Modes Yong Du, Min Xu, Erbao Dong, Shiwu Zhang, Jie Yang	98
Dynamics for Biomimetic Continuum Arms: A Modal Approach Isuru Godage, David Branson, Emanuele Guglielmino, Gustavo Medrano-Cerda,	104
Information Theoretic Analysis on a Soft Robotic Arm Inspired by the Octopus Kohei Nakajima, Tao Li, Hidenobu Sumioka, Matteo Cianchetti, Rolf Pfeifer	110
Design and Development of Continuum Structure for Robotic flower Nguyen Truong-Thinh, Nguyen Ngoc-Phuong	118
TA1-5: Sensing for Detection and Localization I	
Self Localisation using Embodied Data for a Hybrid Leg-Wheel Robot Jakob Schwendner, Sylvain Joyeux	124
Towards efficient Semantic Real time mapping of Man-made environments using Microsoft's Kinect Sven Olufs, Markus Vincze	130
An Intelligent Environmental Monitoring System Based on Autonomous Mobile Robot Junjun Wu, Zhonghui Huang, Yisheng Guan, Chuanwu Cai, Qinghui Wang, Zhiguang Xiao. Zhifang Zheng. Hong Zhang. Xianmin Zhang	138
Target object identification and localization in mobile manipulations Yong Jiang, Ning Xi, Qin Zhang, Yunyi Jia	144
An Image based Path Planning Scheme for Exploration Rover Mariko Sakuta, Shogo Takanashi, Takashi Kubota	150
TA1-6: Control of Multiple Robots	
A Robust Adaptive Control Scheme of Two Planar Manipulators Handling an Unknown Object in an Assembly Process Reza Mohajerpoor, Mehdi Rezaie, Ali Talebi, Reza Monfaredi	156
Smooth Transition Between Tasks on a Kinematic Control Level: Application to Self Collision Avoidance for Two Kuka LWR Robots Tadej Petric, Leon Zlajpah	162
MOTION PLANNING OF TWO STACKER CRANES IN A LARGE-SCALE AUTOMATED STORAGE/RETRIEVAL SYSTEM YIHENG KUNG, YOSHIMASA KOBAYASHI, TOSHIMITSU HIGASHI, JUN OTA	168

	Multilevel Based Topology Design and Formation Control of Robot Swarms Xiao Yan, Jian Chen, Dong Sun	174
	ANALYSIS OF CONGESTION OF TAXIING AIRCRAFT AT A LARGE AIRPORT Yusuke KARIYA, Takamichi MASE, Shigeki YOSHIHARA, Jun OTA	180
TA	1-7: Biomimetic Control	
	An Energy Based Two Level Prioritized Control for Virtual Humans Mingxing Liu, Alain Micaelli, Paul Evrard, Adrien Escande, Claude Andriot	186
	Using Brain-Computer Interface to Steer a Humanoid Robot Pierre Gergondet, Sebastien Druon, Abderrahmane Kheddar, Christoph Hintermüller, Christoph Guger. Mel Slater	192
	Construction of Real-time BMI Control System Based on Motor Imagery Masataka Yoshioka, Chi Zhu, Youichiro Yoshikawa, Tomohiro Nishikawa, Shota Shimazu. Kazuvuki Imamura. Feng Wang. Haovong Yu. Yuling Yan	198
	Augmenting Movement Imitation with Reflexive Stability Behavior Andrej Gams, Tadej Petrič, Jan Babič, Leon Žlajpah	204
	Integrating Neuroscience-based Models Towards an Autonomous Biomimetic Synthetic César Rennó-Costa, André L. Luvizotto, Encarni Marcos, Armin Duff, Marti Sanchez-Fibla, Paul Verschure	210
TA	2-1: Control of Teleoperations	
	Tele-Impedance: Preliminary Results on Measuring and Replicating Human Arm Impedance in Tele Operated Robots Arash Ajoudani, Nikos G. Tsagarakis, Antonio Bicchi	216
	Miniature Humanoid MH-1 for Wearable Telecommunicator Yuichi Tsumaki, Nobuyuki Inoue, Yutaka Satoh, Riichiro Tadakuma	223
	Event-Based Dynamic Bandwidth Management for Teleoperation Chadi Mansour, Imad Elhajj, Elie Shammas, Daniel Asmar	229
	Operational Feedback Considering Social Contingency for Robot Teleoperation Toshimitsu Takahashi, Masahiko Morita, Fumihide Tanaka	234
	A Cooperative Robotic System for Handling a Geometrically Unknown Object for Non-Rigid Contact without Force Sensors Reza Monfaredi, S. Mehdi Rezaei, Heidar Ali Talebi	240
TA	2-2: Medical Robotics II	
	Construction of an Integrated Soft Micro Mobile Robot for Surgery Support in the Abdominal Cavity Chika Hiroki, Wenwei Yu	246
	Structure Design and Master-slave Control System of a Vascular Interventional Robot Xing-tao Wang, Xing-guang Duan, Qiang Huang, Cong-jun Gao, Xue-shan Gao, Da	252
	Characteristics Evaluation of the Novel Robotic Catheter System Jian Guo, Shuxiang Guo, Nan Xiao, Shunichi Yoshida, Takashi Tamiya, Masahiko	258
	Measurement Algorithms of Cross-section Area and Blood Speed for Noninvasive Blood Flow Measurement System Keiichiro Ito, Tomofumi Asayama, Shigeki Sugano, Hiroyasu Iwata	263

	Development of a Novel Flow Sensor to Acquire Quantitative Information on BVM Operation During Airway Management Training Chunbao Wang, Yohan Noh, Hiroyuki Ishii, Atsuo Takanishi, Satoru Shoji	269
TA2-:	3: Walking Robots II	
	A sliding walk method for humanoid robots using ZMP feedback control Satoki Tsuichihara, Masanao Koeda, Seiji Sugiyama, Tsuneo Yoshikawa	275
	A method on Trajectory Plan for Humanoid Space Robot Que Dong, Jian Yang, Bo Wei, Hui Li, Zhihong Jiang, Danfeng Li, Hongjie Li, Qiang	281
	Effect of Increase in Single Support Phase on Walking Speed of a Biped Robot Tara Farizeh, Saeed Mansouri, Mohammad Jafar Sadigh	287
	Quantitative Performance Analysis of Muscle Suit - Estimation by Oxyhemoglobin and Deoxyhemoglobin - Yoshiki Muramatsu, Hiroyuki Kobayashi, Yutaka Sato, He Jiaou, Takuya Hashimoto, Hiroshi Kobayashi	293
	Legged Gaits Planning for a Novel ePaddle-Based Amphibious Robot Yi Sun, Shugen Ma	299
TA2-	4: Vision for Robot Navigation	
	Image Similarity from Feature-Flow for Keyframe Detection in Appearance-Based Robert L. Stewart, Hong Zhang	305
	The encoding of complex visual stimuli by a canonical model of the primary visual cortex: temporal population coding for face recognition on the iCub robot Andre Luvizotto, Cesar Rennó-Costa, Ugo Pattacini, Paul Verschure	313
	Optimal Orientation Estimation for Mobile Robot in Urban Area Haifeng Li, Jingtai Liu	319
	Monocular Camera Based Guiding and Positioning Strategy for Docking of a Distributed Swarm Flight Robot Miao Liu, Suibing Zheng, Ning Li, Hongxing Wei	325
	Stereo-based Road Boundary Tracking for Mobile Robot Navigation Takeshi Chiku, Jun Miura, Junji Satake	331
TA2-	5: Sensing for Detection and Localization II	
	Development of a Collision-Avoidance Assist System for an Electric Cart Masanori Sato, Tetsuo Tomizawa, Shunsuke Kudoh, Takashi Suehiro	337
	On Improving Laser Data for Extrinsic LRF/Camera Calibration Sukhum Sattaratnamai, Nattee Niparnan, Attawith Sudsang	343
	3D SOKUIKI Sensor Module with Roundly Swinging Mechanism for Taking Wide-field Range and Reflection Intensity Image in High Speed Mitsuhiro Matsumoto, Shin'ichi Yuta	349
	High-Performance Computing Model for 3D Camera System Hong-Nam Ta, Sukhan Lee	354

Heuristically Arrival Time Field-Biased (HeAT) Random Tree: An Online Path Planning Algorithm for Mobile Robot Considering Kinodynamic Constraints <i>Igi Ardiyanto, Jun Miura</i>	360
MBHP: a Memory-Based Method on Robot Planning under Uncertainties Jun Zhang, Yi Zeng, Huifen Liu, Ying Hu, Jianwei Zhang	366
Comparative Study of Affordance-Based Navigation and Model-Based Navigation Taishi Yamashiro, Kazuyuki Ito	372
Contour Detection and Localization of Intelligent Wheelchair for Parking into and Docking with U-Shape Bed Wei Zou, Aixue Ye, Tao Lu, Yanan Ren, Zhengdong Xu, Kui Yuan	378
Indoor Odour Source Localisation Using Robot: Are There Advantageous Initial <i>Tien-Fu Lu</i>	384
TA2-7: Biomimetics I	
Learning and Adaptation of a Stylistic Myoelectric Interface: EMG-based Robotic Control with Individual User Differences Takamitsu Matsubara, Sang-Ho Hyon, Jun Morimoto	390
Mathematical model of rubberless pneumatic artificial muscle Takanori Ogasawara	396
A Robot-rat Interaction Experimental System based on the Rat-inspired Mobile Robot Qing Shi, Hiroyuki Ishii, Atsuo Takanishi	402
An action selection model having motivational mechanism inspired by the real rat's behaviors for autonomous robots Masayoshi Nagao, Tsutomu Miki	408
Thermal Analysis of the "Internal Force-Static Friction" Capsule Robot Qi Shao, Hao Liu, Guiyang Li, Xuelin Fang, Hongyi Li	414
TP1-1: Telerobotics for Medical Applications	
Maxillofacial Surgery Using Virtual Force Feedback Amjad Ali Syed, Xingguang Duan, Congjun Gao, Xiangtao Wang, Qiang Huang	419
Development of Manipulator including Exchange-type Multi-articulated End-effector for Single Port Surgical Robot Sungmin Seung, Hongsuk Choi, Wooyoung Kim, Seongyong Ko, Jongoh Park, Sukho	425
Intraoperative Integration Concepts for a Flat-Panel Ultrasound Robot Jan D.J. Gumprecht, Florian Geiger, Jens-Uwe Stolzenburg, Tim C. Lueth	431
Reconstructing Haptic Sensing in Tele- Robotics Surgery by Non-Attentive Visual Shraga Shoval, Michael Wagner, Eyal Porat	437
Tele-operation of a Robotic Exoskeleton for Rehabilitation and Passive Arm movement Assistance Mohammad Rahman, Thierry K-Ouimet, Marrouf Saad, Jean-pierre Kenne, Philippe	443
A Supervision System for the Intuitive Usage of a Telemanipulated Surgical Robotic Holger Moennich, Philip Nicolai, Tim Beyl, Joerg Raczkowsky, Heinz Woern	449

	WCE Video Abstracting Based on Novel Color and Texture Features <i>Qian Zhao, Max Meng</i>	455
	Master-slave Control Strategy for Abdominal Minimally Invasive Surgery Robotic Yili Fu, Ying Yu, Shuguo Wang	460
	Development of Endoscopic Robot and Experiment in the Large Intestine of Dead Kazunori Adachi, Masato Yokojima, Yuya Hidaka, Taro Nakamura	467
	Deformation simulation for the needle insertion into Liver Shaoli Liu, Zhiwen Qin, Jing Xu, Xiaowen Yu, Qiang Yi, Libin Song, Ken Chen	473
	A Novel Surgical Navigation Concept for Closed Intramedullary Nailing of Femur Using 4-DOF Laser-Guiding Robot Sakol Nakdhamabhorn, Jackrit Suthakorn	479
	Development of Wire-Driven Laparoscopic Surgical Robotic System, "MU-LapaRobot" Chawaphol Direkwatana, Jackrit Suthakorn, Chumpon Wilasrusmee	485
TP1-3	B: Walking Robots III	
	Simplified control of upright walking by exploring asymmetric gaits induced by leg Christophe Maufroy, Moritz Maus, André Seyfarth	491
	An Evolutionary Central Pattern Generator for Stable Bipedal Walking by the Increased Double Support Time Chang-Soo Park, Young-Dae Hong, Jong-Hwan Kim	497
	Towards a Biologically Inspired Open Loop Controller for Dynamic Biped Locomotion Jonathan Spitz, Yizhar Or, Miriam Zacksenhouse	503
	The Superior Mobility and Function of W-Climbot A Bio-inspired Biped Modular Wall Climbing Robot Haifei Zhu, Yisheng Guan, Wenqiang Wu, Xuefeng Zhou, Lianmeng Zhang, Xianmin Zhana. Hong Zhang	509
	Turning Maneuvers and Mediolateral Reaction Forces in a Quadruped Robot Wei Wang, Yiping Yang	515
TP1-4	1: Image Analysis	
	Robust vision system to illumination changes in a color-dependent task Andres Espinola, Alberto Romay, Tatiana Baidyk, Ernst Kussul	521
	Self-Supervised Terrain Classification Based on Moving Objects Using Monocular Donghui Song, Chuho Yi, Il Hong Suh, Byung-Uk Choi	527
	Video Mosaicing for Real-time Field of View Enhancement Poravee Wongsawatsuriyha, Numfon Khemthongcharoen, Wibool Piyawattanametha	534
	Crowd Density Estimation Based on Image Potential Energy Model Guogang Xiong, Xinyu Wu, Jun Cheng, Yen-Lun Chen, Yongsheng Ou, Ying Liu	538
	From Stereo Image Sequences to Smooth and Robust Surface Models using Temporal Information and Bilateral Postprocessing Sebastian Röhl, Stefanie Speidel, David Gonzalez-Aguirre, Stefan Suwelack, Hannes Kenngott. Tamim Asfour. Beat Peter Müller-Stich. Rüdiger Dillmann	544
	TPS-SURF-SAC Matching Approach of Feature Point Applied to Deformation Measurement of Nonrigid Tissues from MR Images	551

TP1-5: Sensing for Detection and Localization III

	Spatio-Temporal Initialization for IMU to Camera Registration Elmar Mair, Michael Fleps, Michael Suppa, Darius Burschka	557
	A Wearable Robot Control Interface based on Measurement of Human Body Motion using a Camera and Inertial Sensors Junichi Sugiyama, Jun Miura	565
	An IR System in the Mobility Support System to Expand the Field of Activities for Personal Mobility Vehicles Taro Fujikawa, Masaki Shirata, Shuro Nakajima	571
	Non Visual Sensor Based Shape Perception Method for Gait Control of Flexible Colonoscopy Robot Jaewoo Lee, Genya Ukawa, Shuna Doho, Zuohua Lin, Hiroyuki Ishii, Massimiliano Zecca. Atsuo Takanishi	577
	Cuboid-based Workspace Mapping and Plane Detection using Time-series Range Data Yamazaki Kimitoshi, Takemitsu Mori, Takashi Yamamoto, Masayuki Inaba	583
	GPS Measurement Model with Satellite Visibility using 3D Map for Particle Filter Eijiro Takeuchi, Masashi Yamazaki, Kazunori Ohno, Satoshi Tadokoro	590
TP1-6	6: Motion Planning and Control for Mobile Robots II	
	Motion Control of Differential Wheeled Robots with Joint Limit Constraints Juan Gonzalez-Gomez, Juan G. Victores, Alberto Valero-Gomez, Mohamed	596
	Comparative Analysis of Path Planners for a Car-like Mobile Robot in a Cluttered Hyunki Kwon, Woojin Chung	602
	Indeterminate Multi-Point Impact with Friction of Agile Legged Robots Adrian Rodriguez, Alan Bowling	608
	Theoretical and Experimental Research on Lugged Wheel Performance for Wheel Mobile Robot on Loose Sand Jicheng Liu, Pengwei Chen, Senlong Tang, Haibo Gao	614
	A Generic Method to Determine Space-Saving Corridor Segments for Trucks with One-Axle Trailer Christian Weyand, Elisabeth Balcerak, Dieter Zöbel	620
	Hybridizing RRT and Variable-Length Genetic Algorithm for Smooth Path Generation Chun-Hao Wei, Jing-Sin Liu	626
TP1-7	7: Biomimetics II	
	A Small Number Actuator Mechanism Design for Anthropomorphic Face Robot Chyi-Yeu Lin, Chun-Chia Huang, Li-Chieh Cheng	633
	The Musculoskeletal System of the Human Arm - More than the Sum of its Parts Sebastian Klug, Thomas Lens, Michael Nogler, Oskar von Stryk	639
	Micro Diagnostic by Micro Robot with Stiffness Indenter for BIO Materials Montree Pakkratoke, Nguyen Ngoc Tu, Shinosuke Hirata, Chisato Kanamori, Hisayuki	644

	Robotic Hand Biomimicry: the Effect of Finger Force and Position Abduction Feedback During Contour Interaction Benjamin A. Kent, Erik D. Engeberg	650
	A Pilot Investigation of Continuum Robots as a Design Alternative for Upper Extremity Exoskeleton Kai Xu, Dong Qiu, Nabil Simaan	656
	Modeling the Effects of Mass and Age Variation in Wolves to Explore the Effects of Heterogeneity in Robot Team Composition <i>John Madden, Ronald Arkin</i>	663
TP-I	P: Poster Session I: Robotics	
	Simulated reality environment for development and assessment of cognitive robotic Sebastian Noth, Ioannis Iossifidis	671
	Arc Tracking on an Eight-Axis Robot System Ronghuai Qi, Tin Lun Lam, Huihuan Qian, Yangsheng Xu	678
	An Approach to Composition of OPRoS Based Components and Its Interfaces to Reuse Control Algorithms for Service Robots Eun-Cheol Shin, Byung-Wook Choi, Sang-Hun Ji, Ho-Gil Lee	684
	Micro-mixing of microbeads utilizing vortex generation near a micro-nano interface Seung Jun Lee, Daejoong Kim	690
	Petri Net Based Hierarchical and Distributed Implementation of Multiple Robotic Manufacturing Systems Gen'ichi Yasuda	696
	Learning Task Space Control through Goal Directed Exploration Lorenzo Jamone, Lorenzo Natale, Kenji Hashimoto, Giulio Sandini, Atsuo Takanishi	702
	Control of a Flexible Finger using Electro-conjugate Fluid Kento Mori, Akihiro Yamaguchi, Kenjiro Takemura, Shinichi Yokota, Kazuya Edamura	709
	Tension Distribution Algorithm of a 7-DOF Cable-Driven Robotic Arm Based on Dynamic Minimum Pre-tightening Force Xianqiang You, Bing Li, Weihai Chen, Shouqian Yu	715
	Applications of Robot Navigation Based on Artificial Landmark in Large Scale Public Yu-Cheol LeeHeesung Chae, Sung-Hoon Kim	721
	Bounded Control of a Spherical Actuator Based on Orientation Measurement Feedback Xingming Wu, Fanghong Guo, Jingmeng Liu, Weihai Chen	727
	Handling and Grasp Control with Additional Grasping Point for Dexterous Manipulation of Cylindrical Tool Taisuke Sugaiwa, Kuniyuki Takahashi, Hiroyuki Kano, Hiroyasu Iwata, Shigeki Sugano	733
	Basic study of high DOF micromanipulation by surface tension using the multi-needle- type capillary Shinnosuke Hirata, Takuya Shigeta, Hisayuki Aoyama	739
	Development of a Micro Manipulator using a Microgripper and PZT Actuator for Microscopic Operations Hyeunseok Choi, Dongik Shin, Youngsun Ryuh, Changsoo Han	744
	On Network Simulation for Performance Evaluation of Real-time Internet-based	750

	Inertial space Tracking for Free-floating Space Robot Manipulator Using RBF-NN Based Compensating Control Algorithm Xiaoteng Tang, Cheng-kun Tang, Hongzhe Li	756
	A Backstepping Robust Control Method for Free-floating Space Robot System with Xiaoteng Tang, Cheng-kun Tang, Hongzhe Li	761
	Development of a Teleoperation System Based on Virtual Environment Yuanqian Gao, Jinhua Li, He Su, Jianmin Li	766
	Fabrication of Hybrid Nanoparticle/CNT Nanocomposite by Self-Assembly Method Via Ionic Interaction YI-Woong Ko, Jung-Bin Lim, In-Sik In, Jong-Tae Son, Young-Ho Park, Cheong Kim, Kvung-Min Kim	772
	Adaptive Two-Class C-Support Vector Machine Algorithm for Turbopump Fault Tao Hong, Hui Li, Fuli Zhong	779
	Real-time 3-D Object Tracking Using Kinect Sensor Takayuki Nakamura	784
	Automatic Hook Crane With Robotic Arm Masahiro Izumi, Hiroaki Seki, Yoshitsugu Kamiya, Masatoshi Hikizu	789
	Feeding of Microparts Along an Asymmetric Surface Using Horizontal and Symmetric Vibrations - Development of Asymmetric Surfaces using Anisotropic Etching Process of Single-Crvstal Silicon - Atsushi Mitani, Yasutaka Matsuo	795
	Singularity Research for 6/6-PSS Parallel Manipulator Based on The Screw Theory Zhijiang Xie, Zezheng Wang, Daiping Song	801
	Adaptive Pitch Control of a Six Degree-of-Freedom Ducted-Fan Aircraft Oliver Grant, Karl Stol, Akshya Swain	806
	Robust Real-time Lane Detection Based on Lane Mark Segment features and General A Priori Knowledge Hao LI, Fawzi NASHASHIBI	812
	Locating Objects in Spherical Panoramic Images Tong Guofeng, Gu Jiuhong	818
	A Wall-Following Strategy for Mobile Robots Based on Self-Convergence Ying Liu, Ruiqing Fu, Jiping Wang, Yongsheng Ou, Xinyu Wu, Ansi Peng	824
	Omni-vision Mobile Robot vSLAM based on Spherical Camera Model Tong Guofeng, Wu Zizhang, Tan Jindong	829
	Scaling up a Boltzmann machine model of Hippocampus with visual features for mobile Alan Saul, Tony Prescott, Charles Fox	835
	Edge Map Guided Stereo Matching in HSL Color Space for Mobile Robot Navigation Yuhua Zou, Weihai Chen, Jianbin Zhang	841
TP2-1	: Multiple and Swarm Robots	
	Handling of a Large Irregularly Shaped Object by Two Mobile Robots Hiromasa Kamogawa, Zhaojia Liu, Jun Ota	847

A Multi-Robot System for Dome Inspection and Maintenance: Concept and Stability Atabak Nejadfard, Hadi Moradi, Majid Nili Ahmadabadi	853
Optimization of Foraging Multi-Agent System Front: A Flux-Based Curve Evolution Musad Haque, Amir Rahmani, Magnus Egerstedt, Anthony Yezzi	859
Sorting Boxes with a Robotic Swarm: An Analysis by Means of Experiment, Simulation and Model Alexander Kettler, Heinz Wörn	865
A General Framework Integrating Exploration, Self-assembly and Locomotion Control for Swarm Robots Hongxing Wei, Haiyuan Li, Youdong Chen, Jindong Tan	871
Development of a Genderless and Fail-Safe Connection System for Autonomous Guoqiang Fu, Arianna Menciassi, Paolo Dario	877
TP2-2: Medical Robotics IV	
Development of Upper-limb type HAL and Reaching Movement for Meal-Assistance Tasuku Otsuka, Ko Kawaguchi, Hiroaki Kawamoto, Yoshiyuki Sankai	883
Meal-Assistance by Robot Suit HAL using Detection of Food Position with Camera Hiroaki Kawamoto, Tomoya Shiraki, Tasuku Otsuka, Yoshiyuki Sankai	889
Effects of Ground Contact for Overground Walking on a Robotic Gait Trainer Ping Wang, Kin Huat Low, Pang Hung Lim, Adela Tow	895
The Weight Load Inconsistency Effect on Voluntary Movement Recognition of Essential Tremor Patient Masatoshi Seki, Yuya Matsumoto, Takeshi Ando, Yo Kobayashi, Hiroshi lijima, Masanori Nagaoka. Masakatsu G. Fuiie	901
A Measurement and Evaluation Method of a Support System to Teach How to Improve Transferring Patients Taizan Yonetsuji, Yoshihiro Takebe, Masako Kanai-Pak, Jukai Maeda, Miwa Hirata, Yasuko Kitajima, Mitsuhiro Nakamura, Kyouko Aida, Yuriko Takabatake, Noriaki	908
Subject-Specific Gait Parameters Prediction for Robotic Gait Rehabilitation via Generalized Regression Neural Network Trieu Phat Luu, Hup Boon Lim, Kay Hiang Hoon, Xingda Qu, Kin Huat Low	914
TP2-3: Robotic Systems	
Wireless Measurement and Control System for a bio-inspired Mini-robot Cenyu Yang, Tao Song, Jinguang Wang, Zhe Wang, Qingmeng Wang, Jiansheng Xu	920
OBSTACLE PERFORMANCE ANALYSIS FOR A NOVEL TRANSMISSION LINE INSPECTION ROBOT WITH PASSIVE JOINTS YIFENG SONG, HONGGUANG WANG, FENGREN JING	926
Dynamic Wafer Handling Process in Semiconductor Manufacturing Heping Chen, Ben Mooring, Harold Stern	932
Vibrotactile Cradle for Smart Cell-phone Providing Spatial and Directional Cues Gi-Hun Yang, Yeonsub Jin, Moon-sub Jin, Sungchul Kang	938
Vision-guided Robot Alignment for Scalable, Flexible Assembly Automation Biao Zhang, Jianjun Wang, Gregory Rossano, Carlos Martinez, Sonke Kock	944

TP2-4: 3D Image Analysis

	Integrated Approach of Skin-color Detection and Depth Information for Hand and Face Localization Dan Xu, Yen-Lun Chen, Xinyu Wu, Yongsheng Ou, Yangsheng Xu	952
	Adaptive Sensor-Fusion of Depth and Color Information for Cognitive Robotics Denis Klimentjew, Jianwei Zhang	957
	Framework for Consistent Maintenance of Geometric Data and Abstract Task- Knowledge from Range Observations Juan Carlos Ramirez de la Cruz, Darius Burschka	963
	Plane Detection for Kinect Image Sequences Yuttana Suttasupa, Attawith Sudsang, Nattee Niparnan	970
	Detection of a Hand-Raising Gesture by Locating the Arm Nyan Bo Bo, Peter Van Hese, Dimitri Van Cauwelaert, Peter Veelaert, Wilfried Philips	976
	A visual tracking strategy using Computer Graphics and Edge Chuantao Zang, Koichi Hashimoto, Jungjae Moon	981
TP2-	5: Sensing for Detection and Localization IV	
	A New Method for Detecting Pipeline Deformation by An Inspection Robot with A Moving 2D Laser Rang Finder Jiangang Qiu, Zhangjun Song, Jianwei Zhang	987
	Laser-based Road Recognition for a Smart Electric Wheelchair Tomoya Suzuki, Masafumi Hashimoto, Kazuhiko Takahashi	993
	Laser-Based Pedestrian Tracking with Multiple Mobile Robots Using Outdoor SLAM Kei Kakinuma, Masataka Ozaki, Masafumi Hashimoto, Takumi Yokoyama, Kazuhiko Takahashi	998
	Transportable Laser Range Sensing System for Estimation of Three Dimensional Motion Distance and Map making using In-building Shape Feature Mitsuhiro Matsumoto, Shin'ichi Yuta	1004
	Appearance and map-based global localization using laser reflectivity DongXiang Zhang, Ryo Kurazume, Yumi Iwashita, Tsutomu Hasegawa	1010
	Self-Localization and 3-D Model Construction of Pipe by Earthworm Robot Equipped with Omni-Directional Rangefinder Atsushi Yamashita, Kenki Matsui, Ryosuke Kawanishi, Toru Kaneko, Taro Murakami, Havato Omori. Taro Nakamura. Haiime Asama	1017
TP2-6	6: Motion Planning and Control for Mobile Robots III	
	User-centric Real Time Service Scheduling for Robots Jung-Hwa Lee, Jung-Min Park	1024
	Development of Airway Management Training System WKA-4: Control System for Simulation of Real World Condition of Patient's Motion Kazuki Ebihara, Yohan Noh, Kei Sato, Chunbao Wang, Hiroyuki Ishii, Atsuo Takanishi, Kazuvuki Hatake. Satoru Shoii	1029
	Online Motion Model Parameter Estimation using Augmented Kalman Filter and Discriminative Training	1035

			1/ 1
VIII	L,,,,,,	VAII	K I Irodo
11110		7 ()//	Kuroda

	Autonomous Mobile System in Urban Environments with Moving Obstacles such as people and another robots Yuya Nagata, Masahito Mitsuhashi, Yoji Kuroda	1041
	Multi-Objective Path Planning Using Spline Representation Faez Ahmed, Kalyanmoy Deb	1047
	Robot Motion Planning Utilizing Local Propagation of Information Based on Particle Swarm and Its Internal Parameters Gakuto Masuyama, Atsushi Yamashita, Hajime Asama	1053
TF	22-7: SLAM	
	A 3D Simultaneous Localization And Mapping Exploration System Gregor Michalicek, Denis Klimentjew, Jianwei Zhang	1059
	Distributed Feature based RBPF Multi Robot SLAM Syed Riaz un Nabi Jafri, Luca Brayda, Ryad Chellali	1066
	On Sample Diversity in Particle Filter based Robot SLAM Xiuzhi Li, Songmin Jia, Wei Cui	1072
	Mapping and Localization by Co-embedding of Observation Matrix Sho Nakamura, Takehisa Yairi	1078
	Iteration Effect on Vision based Simultaneous Localization and Mapping using Kalman Filters Family Samira Darabi, Alireza Mohamad Shahri	1084
	Building Human Motion Map with Human States Estimation in Indoor Dynamic Yuji Ogawa, Zhidong Wang, Tetsuya Wada, Ken Tomiyama, Yasuhisa Hirata, Kazuhiro	1090
	Friday, December 9, 2011	
FA	1-1: Grasping and Manipulation I	
	Fast and Automatic Grasping of Unknown Objects Zhaojia Liu, Hiromasa Kamogawa, Jun Ota	1096
	Bioinspired Grasp Primitives for a Dexterous Robotic Hand to Catch and Lift a Cylinder John Lavery, Ben Kent, Erik Engeberg	1102
	Grasp Stability Analysis of Two Objects by Considering Contact Surface Geometry in Takayoshi YAMADA, Toshiya TAKI, Manabu YAMADA, Hidehiko YAMAMOTO	1108
	Prehension Analysis and Manipulability of an Anthropomorphic Metamorphic Hand with a Reconfigurable Palm Guowu Wei, Vahid Aminzadeh, Jian S Dai	1116
	Backdrivable Periodic Finger Joint Synergies: Human Observations Applied to a Dexterous Robotic Hand Nareen Karnati, Ben Kent, Erik D. Engeberg	1122
FA	1-2: Medical Robotics V	
	Design and Control of Electromyogram Prosthetic Hand with High Grasping Force	1128

	Masaaki Hioki, Snoya Ebisawa, Hirofumi Sakaeda, Tetsuya Mouri, Shinobu Nakagawa, Yoshinori Uchida. Haruhisa Kawasaki	
	Stitching Path Planning using Circular Needles-Tissue Interaction Model Faezeh Heydari Khabbaz, Alexandru Patriciu	1134
C	Ultrasound image-based comanipulation for enhanced perception of the contacts with a distal soft organ Cecile Poquet Torterotot, Marie-Aude Vitrani, Pierre Mozer, Guillaume Morel	1140
(Evaluation of Emi interaction with non-disabled children in nursery school using wizard of Oz technique Sebastien Saint-Aime, Marine Grandgeorge, Brigitte Le Pevedic, Dominique Duhaut	1147
	Children recognize emotions of EmI companion robot Sebastien Saint-Aime, Brgitte Le Pevedic, Dominique Duhaut	1153
FA1-3:	[OS] The Development Towards Sensory Based Natural Walking Human	oid
F	Gender Recognition Based on Ensemble Learning with Selective Features for Service Robotics Applications Ren C. Luo, Tzu Ta Lin, Kuan Yu Chen	1159
1	Design and Implementation of Humanoid Biped Walking Robot Mechanism towards Natural Walking Ren C. Luo, Yi Hao Pu, Chwan Hsen Chen, Jia Rong Chang, Cheng Yen Li	1165
	Modeling and Control of the CCEA Robotic Arm Po-Jen Cheng, Han-Pang Huang	1171
I	HUMANOID EYE ROBOT WITH ANGLE CONTROL AND IMAGE REGISTRATION BO-JUIN CHEN, SHENG-FAN WEN, GUN-HWA LIU, YA-YUN LEE, WEN-PIN SHIH, CHING-LIANG DAI. CHI-AN DAI. YUH-CHUNG HU	1177
	Development of Shear Sensing System for a Three-Finger Robot Hand Yu-Tse Lai, Yung-Ming Chen, Chun-Ting Chen, Yao-Joe Yang	1183
FA1-4:	Micro/Nano Sensors and Systems	
	Preliminary Development of a Spider-inspired Structure for Underwater Application Yasong Li, Carlo Menon	1188
1 (DESIGN AND CHARACTERIZATION OF LIQUID CRYSTAL POLYMER MEMBRANE MEMS SENSOR FOR UNDERWATER SENSING APPLICATIONS: A BIOMIMETIC OF LATERAL-LINE FISH SENSING AJAY GIRI PRAKASH KOTTAPALLI, CHEE WEE TAN, JIANMIN MIAO, GEORGE BARBASTATHIS, MICHAEL TRIANTAFYLLOU	1194
	Numerical Simulation of Force-balance MEMS Comb Accelerometers Min Chen, Hao Chen, Jinlin Wang, Limei Xu	1200
F	Evaluation of Electro Conductive Film and Strain Gage as Displacement Sensor for Pneumatic Artificial Muscle Yohta Yamamoto, Shuichi Wakimoto, Koichi Suzumori	1206
	High Speed Micromanipulation System with Multi-Scalability	1212

	Development of Bio-Machine based on the Plant Response to External Stimuli Aditya K, Yuli Chen, Eun-Hye Kim, Ganesha Udupa, YongKwun Lee	1218
	Classification of fNIRS Data Using Wavelets and Support Vector Machine during Speed and Force Imagination Baolei Xu, Yunfa Fu, Lei Miao, Zhidong Wang, Hongyi Li	1224
	A linear regression model for estimation of isometric wrist joint torques with varying arm configurations using EMG signals Amirreza Ziai, Carlo Menon	1230
	A Novel Approach for Skin Color Detection in Dynamically Changing Illumination Quanyong Huang, Bin Luo, Sheng Bi, Yikai Ma	1236
	Visualizing Sound Pressure Distribution By Kinect and Microphone Array Masafumi Goseki, Hiroshi Takemura, Hiroshi Mizoguchi	1243
FA1-	6: Control of Flexible Robots	
	Vibration Control of a Multi-Flexible-Link Robot Arm under Gravity Jörn Malzahn, Anh Son Phung, Frank Hoffmann, Torsten Bertram	1249
	Data Based Kinematic Model of a Multi-Flexible-Link Robot Arm for Varying Payloads Anh Son Phung, Jörn Malzahn, Frank Hoffmann, Torsten Bertram	1255
	Stiffness Ellipse control of Tendon Mechanisms with Nonlinear Springs Hiroyasu Kashiwagi, Fumihiro Okumura, Satoshi Komada, Junji Hirai	1261
	Spring-Damper Model and Articulation Control of Pneumatic Artificial Muscle Actuators Tomoyuki Mizuno, Nobutaka Tsujiuchi, Takayuki Koizumi, Yoichiro Nakamura, Mitsumasa Sugiura	1267
	ORF-MOSAIC for Adaptive Control of a Biomimetic Arm M. Mahdi Ghazaei A., Henrik Jörntell, Rolf Johansson	1273
FA1-	7: Flying Robots I	
	Dependable takeoff and landing control of a small-scale helicopter with a wireless Yuki Kubota, Yasushi Iwatani	1279
	Attitude and Altitude Control of a Four-Rotor Hovercraft Using Sliding Mode Control with Adaptive Sliding Surface Nicom Promkajin, Manukid Parnichkun	1285
	Design and Implementation of Multiple-Rotorcraft-Flying-Robot Testbed Zheng Wang, Feng Gu, Yuqing He, Jianda Han, Yuechao Wang	1291
	Optimization of the Flapping Motion for the Hovering Flight Jung-Sun Choi, Jae-Woong Kim, Do-Hyung Lee, Gyung-Jin Park	1297
	The design, modeling and control of a tethered aerial robot for search and rescue Mehdi Dehghan, Meysam Zarezadeh, Naeem Farhadian, Hadi Moradi	1302
FA2-	1: Grasping and Manipulation II	
	High-speed Catching Based on Inverse Motion Approach Kenichi Murakami, Taku Senoo, Masatoshi Ishikawa	1308
	A New Finger Inverse Kinematics Method for an Anthropomorphic Hand Choukri Bensalah, Mohamed Abderrahim, Juan Gonzalez Gomez	1314

	Analysis of Grasp Stability for a Multi-fingered Robot Hand by using Polygon segmentation Algorithm Eun-Hye Kim, Myo-Taeg Lim, Yong-Kwun Lee	1320
	Grasp input optimization taking contact position uncertainty into consideration Papat Fungtammasan, Tetsuyou Watanabe	1326
	Feature Extraction from Partial Shape Information for Fast Grasping of Unknown Zhaojia Liu, Lounell B Gueta, Jun Ota	1332
FA2-2	2: Assist and Rehabilitation Robotics I	
	Tools to Design New Devices for Rehabilitation or Robotics Esteban Peña-Pitarch, Jingzhou(James) Yang, Neus Tico-Falguera, Montserrat Abenoza-Guardiola, Georgia Romero-Culleres	1338
	Motion-based Design of Elastic Belts for Passive Assistive Device Using Yumeko IMAMURA, Takayuki TANAKA, Yoshihito SUZUKI, Kazuki TAKIZAWA, Masanori YAMANAKA	1343
	Alternative Interface System by Using Surface EMG of Residual Muscles for Physically Challenged Person Junji Takahashi, Noel Segura Meraz, Satoru Suezawa, Yasuhisa Hasegawa, Yoshiyuki	1349
	Development and Validation of Lower Limb Musculoskeletal Model for Pinpointed	1355
	Muscle Force Control Tomohiro lida, Ming Ding, Hiroshi Takemura, Hiroshi Mizoguchi	1000
	Study of Gait Symmetry Quantification and Its Application to Intelligent Prosthetic Leg Development Fei Wang, Kijun Kim, Shiguang Wen, Chengdong Wu	1361
FΔ2-3	3: Mobile Robots III	
1 //2-		4007
	Mobile Robot System Realizing Autonomous Locomotion ~Combination of Person Following and Autonomous Returning~ Ryoma Arai, Ming Ding, Hiroshi Takemura, Hiroshi Mizoguchi	1367
	A Small-Scale Research Platform for Intelligent Transportation Systems Hung La, Ronny Lim, Jianhao Du, Weihua Sheng, Gang Li, Sijian Zhang, Heping Chen	1373
	Stability Region Estimation of Statically Unstable Two Wheeled Mobile Robots Zareena Kausar, Karl Stol, Nitish Patel	1379
	Imperfect Premise Matching Fuzzy Control for Nonlinear Stochastic Ship Steering Wen-Jer Chang, Che-Pin Kuo, Bo-Jyun Huang	1385
	The Kinematic Model, Motion Planning and Analysis for Obstacle Negotiation Capability of the Composite Six-wheeled-legged Robot Weidong Wang, Chun Xie, Dongmei Wu, Wei Dong, Zhijiang Du	1391
FA2-4: Micro/Nano Actuation and Manipulation		
	Self-Induced Rotation of Pigmented Cells by Dielectrophoretic Force Field Mengxing Ouyang, Wen J. Li	1397
	Multiscale Dynamic Modeling of Processive Motor Proteins Mahdi Haghshenas-Jaryani, Alan Bowling	1403

	Virtual Nano-Hand: A Stable Pushing Strategy in AFM Based Sensorless Zhiyu Wang, Lianqing Liu, Jing Hou, Zhidong Wang, Zaili Dong, Shuai Yuan	1409
	Peristaltic Gel Pump Driven by Chemical Energy Shingo Maeda, Yusuke Hara, Takashi Mikanohara, Shuji Hashimoto	1415
	Feature referenced tip localization enhanced by probability motion model for AFM based nanomanipulations	1421
	Shuai Yuan, Lianqing Liu, Zhidong Wang, Ning Xi, Yuechao Wang, Zaili Dong, Zhiyu Wang. Zhibo Wang	
FA2-	5: Tactile Sensing	
	Spatial and Temporal Coarse to Fine Structuring Method of Distributed Tactile Sensors Based on Changing Velocity of the Sensation Tomoaki Yoshikai, Kazuya Kobayashi, Masayuki Inaba	1427
	A Tactile Matrix for Whole-body Humanoid Haptic Sensing and Safe Interaction Abderrahmane Kheddar, Aude Billard	1433
	Chemical Composition and Physical Features of Harbor Seal (Phoca Vitulina) Vibrissae for Underwater Sensing Application Hendrik Hans, Jianmin Miao, Pablo Valdivia Y Alvarado, Michael S. Triantafyllou	1439
	Correction of Image Data Using Three-Axis Tactile Sensing Sukarnur Che Abdullah, Takuya Ikai, Yusuke Dosho, Hanafiah Bin Yussof, Masahiro	1444
	Development of a Low cost Force Sensor for Wearable Robotic systems Gwang Min Gu, DongJu Lee, Jung Kim	1450
FA2-6	6: Control of Mobile and Aerial Robots	
	Learning Autonomous Drift Parking from One Demonstration Tak Kit Lau	1456
	Volvot : a Spherical Mobile Robot with Eccentric Twin Rotors Masato Ishikawa, Ryohei Kitayoshi, Toshiharu Sugie	1462
	Predictive Control for Plug-in Microturbine Powered Hybrid Electric Vehicles Using Telemetry Information Bo Geng, James K. Mills, Dong Sun	1468
	A hovercraft robot that uses insect-inspired visual autocorrelation for motion control in a Sawyer Fuller, Richard Murray	1474
	Helicopter Velocity Tracking Control by Adaptive Actor-Critic Reinforcement Method Yang Hu, Yang Chen, Jianda Han, Yuechao Wang, Juntong Qi	1482
FA2-7	7: Flying Robots II	
	Microfabrication of Bio-inspired SU-8 Wings and Initial Analyses of Their Aeroelastic Behaviours for Microrobotic Insects Xiao-Qing BAO, Thomas Vanneste, Alexandre Bontemps, Sébastien Grondel, Jean Bernard Paquet. Eric Cattan	1487
	Pitch-Angle Feedback Control of a Biologically Inspired Flapping-Wing Microrobot Nestor O. Perez-Arancibia, Pakpong Chirarattananon, Benjamin M. Finio, Robert J.	1495
	The EPFL jumpglider: A hybrid jumping and gliding robot with rigid or folding wings Mirko Kovac, Wassim Hraiz, Oriol Fauria, Jean-Christophe Zufferey, Dario Floreano	1503

	Closed-loop performance of a proportional controller for visual stabilization using a fly- robot interface Naveed Ejaz, Reiko J. Tanaka, Holger G. Krapp	1509
FP1-1	: Grasping and Manipulation III	
	Solving Pricision Grasp with Simple Feature-Matching Technique Peerapong Thonnagith, Nattee Niparnan, Attawith Sudsang	1516
	Binocular Vision Positioning for Robot Grasping Hao Li, Yen-Lun Chen, Tianhai Chang, Xinyu Wu, Yongsheng Ou, Yangsheng Xu	1522
	Miniaturized Unconstrained Valves with Pressure Control for Driving a Robot Finger Masayuki Tatsumi, Kazuhiro Izusawa, Shinichi Hirai	1528
	A Decision Method of Grasp Region based on a Fingertip Force Evaluation Resisting External Force Keisuke Kondo, Satoshi Komada, Junji Hirai	1534
	Grasp Planning for Parallel Grippers with Flexibility on its Grasping Surface Harada Kensuke, Tsuji Tokuo, Nagata Kazuyuki, Yamanobe Natsuki, Maruyama Kenichi. Nakamura Akira. Kawai Yoshihiro	1540
	A Grasp Performance Criterion for Robot Hands Considering Multiple Aspects of Tasks and Hand Configurations Masahiro SATO, Tsuneo YOSHIKAWA	1547
FP1-2	2: Assist and Rehabilitation Robotics II	
	Biomimetic Myoelectric Control of a Dexterous Artificial Hand for Prosthetic Applications Benjamin Kent, Erik Engeberg	1555
	Control of a Powered Exoskeleton for Elbow, Forearm and Wrist Joint Movements Mohammad Rahman, Thierry K-Ouimet, Maarouf Saad, Jean-pierre Kenne, Philippe	1561
	EEG Biofeedback Training for Upper-Limb Rehabilitation Boonyarat Viriyasaksathian, Sarawin Khemmachotikun, Dilok Puanhvuan, Panya Kaimuk, Yodchanan Wongsawat	1567
	Drawing Assist System for Cerebral Palsy Patients Considering the Involuntary Tomoyuki Nakao, Hirokazu Matsui, Ken'ichi Yano, Naruto Miyagawa, Naoki Kubota, Satoshi Horihata	1573
	Fundamental Study on Evaluation of KEIROKA(Fatigue-Reduction) Technology in Using UD Shovel for Removing Snow by Musculo-Skeletal Dynamics Simulator Hiroyuki Nara, Takayuki Tanaka, Yumeko Imamura, Satoshi Yoshinari, Yasuhiro Nakajima, Shun'ichi Kaneko	1579
	Using Electrooculogram and Electromyogram for powered wheelchair Kim-Tien Nguyen, Truong-Thinh Nguyen	1585
FP1-3	3: Mobile Robots IV	
	A navigation filter for fusing DTM/correspondence updates Oleg Kupervasser, Vladimir Voronov	1591
	The Energetic Cost of Adaptive Feet in Walking Seungmoon Song, Hartmut Geyer	1597

	Blind Hexapod Walking Over Uneven Terrain Using Only Local Feedback Luther Palmer III, Mayur Palankar	1603
	Stability Analysis on Quadrupedal Gaits according to Body's Flexibility using Musculoskeletal Robot Katsuyoshi Tsujita, Kenji Miki	1609
	SERPENTINE ROBOT LOCOMOTION: AN IMPLEMENTATION THROUGH PIECEWISE SINE FUNCTION ATANU MAITY, SOMJYOTI MAJUMDER	1615
	Dynamics Modeling of A Mobile Manipulator for Wheel Slip Avoidance Yunxia Wang, Yunyi Jia, Xin Li, Ning Xi	1621
FP1-4	4: Vision for Robot Control I	
	Biologically inspired neural networks for spatio-temporal planning in robotic navigation Julien Hirel, Philippe Gaussier, Mathias Quoy	1627
	Prediction of Human's Movement for Collision Avoidance of Mobile Robot Shunsuke Hamasaki, Yusuke Tamura, Atsushi Yamashita, Hajime Asama	1633
	Control of a Passive Walker Using a Depth Sensor for User State Estimation Sajjad Taghvaei, Yasuhisa Hirata, Kazuhiro Kosuge	1639
	Theoretical and Experimental Study of Uncertain Set Based Moving Target Localization Using Multiple Robots Feng Gu, Zheng Wang, Yuqing He, Jianda Han, Yuechao Wang	1646
	Feature Extraction of Non-Uniform Food Products Using RGB and RGB-D Data Combined With Shape Models Helge A Wurdemann, Vahid Aminzadeh, Lei Cui, Jian S Dai	1652
	Image Based Approach to Obstacle Avoidance in Mobile Manipulators Xin Li, Yunyi Jia, Ning Xi, Aiguo Song	1658
FP1-	5: Human Detection	
	Human Tracking with Multiple Cameras Based on Face Detection and Mean Shift Atsushi Yamashita, Yu Ito, Toru Kaneko, Hajime Asama	1664
	Human Detection and Tracking With Knee-High Mobile 2D LIDAR Tapio Taipalus, Juhana Ahtiainen	1672
	A Gait Recognition System for Rehabilitation Based on Wearable Micro Inertial Measurement Unit Zhi Li, Guanglie Zhang	1678
	Path Generation with Human Frequency Map for a Mobile Robot and Its Path Evaluation by Using Human Movement Simulations Kimiko Motonaka, Shoichi Maeyama, Keigo Watanabe	1683
	Human Detection Method Based on Feature Co-occurrence of HLAC and HOG Miho Morita, Ming Ding, Hiroshi Takemura, Hiroshi Mizoguchi	1689
	Inertial-Vision Sensor Fusion for Pedestrian Localization Dima Chdid, Raia Queis, Hiam Khoury, Daniel Asmar, Imad Elhaii	1695

	Minh-Nhat Dang, Truong-Thinh Nguyen	1702
	A Solution of Obstacle Collision Avoidance for Robotic Fish Based on Fuzzy Systems Nguyen Dang-Phuc, Nguyen Truong-Thinh	1707
	Hydrodynamic Performance of a Soft Body Under-actuated Batoid Robot Pablo Valdivia y Alvarado	1712
	Generation of Optimal Swimming Algorithm using Reference Velocity for Robotic fish "Ichthus V3" Young-sun Ryuh, Gi-Hun Yang, Hyeun-Seok Choi, Sang-hyo Lee	1718
	Development of a Soft Underwater Robot Mimicking Cow-nosed Ray Wenjing Zhao, Takuma Osaka, Aiguo Ming, Makoto Shimojo	1724
	Improvement and Testing of a Robotic Manta Ray (RoMan-III) K. H. Low, Gerald Seet, Chunlin Zhou, Shusheng Bi, Yueri Cai	1730
FP1-7	7: Service Robots	
	A Software Architecture Framework for Service Robots Dilip Kumar Limbu, Yeow Kee Tan, Ridong Jiang, Tran Anh Dung	1736
	Experimental Verification of Analytical Torques Enabling a Screw Drive In-pipe Robot to Pass through Bent Pipes Atsushi Kakogawa, Shugen Ma	1742
	Kinematic Analysis of an Omnidirectional Mobile Robot with MY Wheels Changlong Ye, Huaiyong Li, Shugen Ma	1748
	Controlling a Humanoid Robot in Home Environment with a Cognitive Architecture KangGeon Kim, Dongkyu Choi, Ji-Yong Lee, Jung-Min Park, Bum-Jae You	1754
	A Strategy for Step Climb Using Wheelie on a One Hand Drive Wheelchair with a Triple <i>Toshihiko Yasuda</i>	1760
	Risk and Gain Battery Management for Self-Docking Mobile Robots Vincent Berenz, Kenji Suzuki	1766
FP-P:	Poster Session II: Biomimetics	
	The Development of Quadruped Giant Puppet based on 3D Graphic Animation SangWon Lee, JinYoung Kim, OHung Kwon, KwanYoung Joung, DaeHee Won,	1772
	Utilization of Human Sensorimotor Learning Capacity for Obtaining Novel Robot Behaviours: 2-DOF Ball Balancing on a Parallel Platform Jan Babič	1778
	Posture Analysis and Application of a Bionic Pectoral Foil Yueri CAI, Shusheng BI, Kin Huat LOW, Lige ZHANG, Guanghua ZONG	1783
	A Contribution to the Development of a Human-Machine Exoskeleton Device Using Rapid Prototyping Technology Thiago Rodrigues Dias Velho, Cecília Amélia de Carvalho Zavaglia	1789
	SIMPLE TENSION DISTRIBUTION CONVERTING WORKSPACE COMMANDS FOR 2-JOINT ARM WITH 3 PAIRS OF 6 TENDONS SHOTA MORI, SATOSHI KOMADA, JUNJI HIRAI	1795

Development of a multi-leg type micro rescue robot for disaster victim search Daigo Misaki, Yuuri Murakami	1801
A Robot Hand Using Electro-conjugate Fluid: Imitating a palm motion of human hand using soft balloon actuator Akihiro Yamaguchi, Kenjiro Takemura, Shinichi Yokota, Kazuya Edamura	1807
Biomimetic Design of Musculoskeletal Humanoid Knee Joint with Patella and Screw-Home Mechanism Yuki Asano, Hironori Mizoguchi, Masahiko Osada, Toyotaka Kozuki, Junichi Urata, Tamon Izawa. Yuto Nakanishi. Kei Okada. Masavuki Inaba	1813
Biomimetic Design and Implementation of Muscle Arrangement around Hip Joint for Musculoskeletal Humanoid Hironori Mizoguchi, Yuki Asano, Tamon Izawa, Masahiko Osada, Junichi Urata, Yuto Nakanishi, Kei Okada, Masayuki Inaba	1819
Postural Balance Strategies for Humanoid Robots in Response to Disturbances in the Frontal Plane Yuki Yoshida, Kohei Takeuchi, Daisuke Sato, Dragomir Nenchev	1825
Detection for Human Respiration and Human Heartbeat under Non-contact Conditions Koichi Kurita	1831
Autonomous Driving: A Comparison of Machine Learning Techniques by Means of the Prediction of Lane Change Behavior Ürün Dogan, Johann Edelbrunner, Ioannis Iossifidis	1837
Analysis of the Colon by the Biodynamic Model and Application to the Colonoscope Robot Design Jaewoo Lee, Genya Ukawa, Shuna Doho, Hiroyuki Ishii, Atsuo Takanishi	1844
FABRICATION OF ANATOMICALLY CORRECT HEAD PHANTOMS BASED ON PROCESSING OF CT IMAGES WITH MATLAB AND RAPID PROTOTYPING JIAXI SHI, HOLGER PROCHAZKA, MATHIAS MARKERT, JAN GUMPRECHT, TIM C.	1850
A New Approach for Face Detection with Omnidirectional Sensors Yohan Dupuis, Xavier Savatier, Jean-Yves Ertaud, Pascal Vasseur	1855
Towards the Development of a Miniaturized Planar Snake Catheter Based on Fluidic Actuators and Conductive Whiskers Allison Chew, Benjamin Chang, Nastaran Naghshineh, Carlo Menon	1861
Characterization of Electro-adhesives for Robotic Applications Juan Pablo Díaz Téllez, Jeff Krahn, Carlo Menon	1867
Functional Interface between Brain and Central Pattern Generator for Application in Human-Machine System Dingguo Zhang, Lin Yao, Ying Wang, Xiangyang Zhu	1873
Estimation Mechanism of Contact Information for a Soft Robot Takashi Takuma, Ken Takamine, Tatsuya Masuda	1878
Towards the Development of a Portable Wrist Exoskeleton Zhen Gang Xiao, Carlo Menon	1884
Formation of Hydrogel Membranes in Microchannels and Its Applications Eunpyo Choi, Hyung-Kwan Chang, Indong Jung, Kyung Min Park, Heungsoo Shin, Ki Dong Park, Jungvul Park	1890
3D Information Retrieval in Mobile Robot Vision based on Spherical Compound Eye	1895

Tong Guofeng, Liu Ran, Tan Jindong

	Robot-assisted Upper-limb Progressive Anti-resistance Training and Clinical Guozheng Xu, Aiguo Song, Huijun Li, Jianwei Cui, Zhiwei Liang, Baoguo Xu, Lizheng	1901
	A novel FastSLAM Algorithm based on Iterated Unscented Kalman Filter Xuejun Yan, Chunxia Zhao, Jizhong Xiao	1906
	Dense Stereo Matching Based on Edge Constraint and Variable Windows Ding Yuan, Feiyang Cheng, Hong Zhang	1912
	Fabrication of Nano-periodic Structure for Water Repellent Using Femtosecond Laser Masaki Yamaguchi, Yasuo Kaneko, Makoto Sasaki	1918
	Trajectory Planning and Posture Adjustment of a Quadruped Robot for Obstacle Xuesong Shao, Yiping Yang, Ying Zhang, Wei Wang	1924
FP2-	1: Grasping and Manipulation IV	
	A Ray-Shooting Based Quality Measurement for Grasping and Manipulation Zhixing Xue, Shuang Xia, Marcus Strand, J. Marius Zöllner, Rüdiger Dillmann	1930
	Tweezers Manipulation Using High-speed Visual Servoing Based on Contact Analysis Taku Senoo, Daiki Yoneyama, Akio Namiki, Masatoshi Ishikawa	1936
	Unknown Object Modeling on the Basis of Vision and Pushing Manipulation Kazunori Ohno, Kurose Kensuke, Eijiro Takeuchi, Lei Zhong, Masanobu Tsubota, Satoshi Tadokoro	1942
	Simulation Results for Manipulation of Unknown Objects in Hand Qiang Li, Robert Haschke, Helge Ritter, Bram Bolder	1949
	A Motion Planning Method using Triangulation of Polyhedral Objects for Robotic Sung Jo Kwak, Tsutomu Hasegawa, Seong Youb Chung	1955
	The Study of BWR Cutting Trajectory for Optimal Stockpile-Voxel Profile Design Maung Thi Rein Myo, Tien-Fu Lu	1961
FP2-	2: Assist and Rehabilitation Robotics III	
	Sitting Motion Assistance on a Rehabilitation Robotic Walker Daisuke Chugo, Yuki Sakaida, Sho Yokota, Kunikatsu Takase	1967
	BIOLOGICALLY INSPIRED ELASTIC TRANSMISSION FOR STIFFNESS VARIABILITY IN ACTUATION: DESIGN AND IMPLEMENTATION SOUMEN SEN	1973
	Design of an Optimum Torque Actuator for Augmenting Lower Extremity Exoskeletons in Biomechanical Framework Sahba Safavi, Ali Selk Ghafari, Ali Meghdari	1979
	Development of a four-axis flexible force sensor using conductive material Naoki Saito, Noboru Nakayama, Toshiyuki Sato	1984
	Gait Analysis for Designing a New Assistive Knee Brace Hongtao Guo, Aaron See-Long Hung, Wei-Hsin Liao, Daniel Tik-Pui Fong, Kai-Ming	1990
	Autonomous Vision-Based Mobility & Manipulation of a 9-DoF WMRA for the Performance of ADL Tasks Fabian Farelo, William Pence, Redwan Alqasemi, Rajiv Dubey	1996

FP2-3: Mobile Robots V

	Study of Parallel Mechanism with Back-Flip Motion Applying Parallel Drive System of Linear Motors Tomoya Uchikoshi, Takashi Harada	2002
	Tubular Gel Motility Driven by Chemical Reaction Networks Takashi Mikanohara, Shingo Maeda, Yusuke Hara, Shuji Hashimoto	2008
	A Wall-Climbing Robot without any Active Suction Mechanisms Yu Yoshida, Shugen Ma	2014
	Compliant Track-Wheeled Climbing Robot with Transitioning Ability and High-Payload Giuk Lee, Kunchan Seo, Junhwan Park, Hwang Kim, Jongwon Kim, TaeWon Seo,	2020
	CoBoLD - A Bonding Mechanism for Modular Self-Reconfigurable Mobile Robots Jens Liedke, Heinz Wörn	2025
	Modeling and Simulation of Electrostatic Adhesion for Wall Climbing Robot Keng Huat Koh, Kuppan Chetty RM, S. G. Ponnambalam	2031
FP2-	4: Vision for Robot Control II	
	Interactions with a Line-Follower: an Interactive Tabletop System with a Markerless Gesture Interface for Robot Control Taiki Fujiwara, Yasushi Iwatani	2037
	Vision-based Object Search in Unknown Human Environment using Object Co- Puwanan Chumtong, Yasushi Mae, Tomohito Takubo, Kenichi Ohara, Tatsuo Arai	2043
	A 2D Safety Vision System for Human-Robot Collaborative Work Environments Based upon The Safety Preservation Design Policy Takafumi Yamamoto, Yoji Yamada, Masaki Onishi, Yoshihiro Nakabo	2049
	Human Visual Attention with Context-Specific Top-down Saliency Dooseok Kang, Sukhan Lee, Yu-Bu Lee	2055
	A High Level Trajectory Indexing Method for Real Time 3D Motion Recognition Jianyu Yang, Youfu Li, Keyi Wang	2061
	Approximate Recursive Bayesian Filtering Methods for Robot Visual Search Sina Radmard, Elizabeth Croft	2067
FP2-	5: Sensor Network	
	Wireless Sensor Network-based Smart Room System for Healthcare Monitoring Jetsada Arnil, Yunyong Punsawad, Yodchanan Wongsawat	2073
	Research of Chaotic PSO Coverage Control Algorithm Based on Energy Balance Jun Xiao, Yan Zhang, Furui Xu, Jiangchuan Li	2077
	Establishing and Maintaining Wireless Communication Coverage among Multiple Mobile Robots using Artificial Neural Network Xu Zhong, Yu Zhou	2083
	Towards distributed coverage of complex spatiotemporal profiles John Oyekan, Huosheng Hu	2090
	A GPS Enhanced Routing Protocol for Vehicular Ad-hoc Network	2096

Yuandong Sun, Yo	naguan Chen.	Yangsheng Xu
------------------	--------------	--------------

	A Distance and Diversity Measure for Improving the Evolutionary Process of Modular Robot Organisms Winkler Lutz, Friebel Adrian, Woern Heinz	2102
FP2-6	6: Underwater Robots II	
	Control and Design of a 3 DOF Fish Robot 'ICHTUS' Gi-Hun Yang, Wooseok Choi, Sang-Hyo Lee, Kyung-Sik Kim, Hyun-Jin Lee, Hyeun- Seok Choi. Young-Sun Rvuh	2108
	Target Following with a Vision Sway Compensation for Robotic Fish Fibo Ki-In Na, In-Bae Jeong, Seungbeom Han, Jong-Hwan Kim	2114
	Optimization of Swimming Locomotion for Fish Robots with Multi-actuation Chunlin Zhou, K. H. Low	2120
	Study of Artificial Fish Bladder System for Robot Fish Minh-Thuan Le, Truong-Thinh Nguyen, Ngoc-Phuong Nguyen	2126
	Modeling and Simulation of Porpoising for a Multilink Dolphin Robot Yujia Wang, Junzhi Yu, Jianwei Zhang	2131
	Region Boundary-Based Control Scheme for an Underwater Vehicle with an Edge-Based Segmentation Approach Zool Ismail	2137

FP2-7: Recent Results Session I

Saturday, December 10, 2011

SA1-1	: Robot Design and Control	
	Optimal Design of a Spatial Four Cable Driven Parallel Manipulator Arian Bahrami, Mansour Nikkhah Bahrami	2143
	Development of Wire-type Motion Support System Controlled by Servo Brakes Yasuhisa Hirata, Yuki Tozaki, Kazuhiro Kosuge	2150
	Model Based Control of Industrial Robot and Implementation of Its Gain Scheduling Robust Control Bin Niu, Hui Zhang	2156
	From Walking to Running a Natural Transition in the SLIP Model Using the Hopping Harold Roberto Martinez Salazar, Juan Pablo Carbajal	2163
	Steering Control based Balancing of a Bicycle Robot Sorawuth Vatanashevanopakorn, Manukid Parnichkun	2169
SA1-2	2: Assist and Rehabilitation Robotics IV	
	Lifting and Lowering Objects Manually and with a Power Assist Robot: Analysis of Human Features to Develop Biomimetic Control S.M.Mizanoor Rahman, Ryojun Ikeura, Haoyong Yu	2175

Novel Biomimetic Control of a Power Assist Robot for Horizontal Transfer of Objects

S.M.Mizanoor Rahman, Ryojun Ikeura, Haoyong Yu

2181

	Skill Assist and Power Assist for Periodic Motions by using Semi-active Assist Mechanism with Energy Control Takashi Kusaka, Takayuki Tanaka, Shun'ichi Kaneko, Hidekazu Kajiwara	2187
	A Control System Based on MCU for Wearable Power Assist Legs Hongbing Tao, Yong Yu, Yunjian Ge, Qiang Zhang, Hanyu Sun	2193
	Design of Exoskeleton Arm For Enhancing Human Limb Movement Thunyanoot Prasertsakul, Teerapong Sookjit, Warakorn Charoensuk	2199
SA1-3	3: Humanoid Robots I	
	Model-free local navigation for humanoid robots Ioannis Iossifidis, Darius Malysiak, Hendrik Reimann	2204
	A scalable Joint-Space Controller for Musculoskeletal Robots with Spherical Joints Michael Jäntsch, Christian Schmaler, Steffen Wittmeier, Konstantinos Dalamagkidis, Alois Knoll	2211
	Design of Humanoid Body Trunk with "Multiple Spine Structure" and "Planar-muscle-driven" System for Achievement of Humanlike Powerful and Lithe Motion Masahiko Osada, Hironori Mizoguchi, Yuki Asano, Toyotaka Kozuki, Junichi Urata, Yuto Nakanishi, Kei Okada, Masayuki Inaba	2217
	3-D Command State-Based Modifiable Walking of a Humanoid Robot on Uneven Terrain with Different Inclinations and Heights Young-Dae Hong, Jong-Hwan Kim	2223
	Whole Body Adapting Behavior with Muscle Level Stiffness Control of Tendon-Driven Multiioint Robot Takuma Shirai, Junichi Urata, Yuto Nakanishi, Kei Okada, Masayuki Inaba	2229
SA1-4	1: Video Session I: Biomimetics	
	Biomimetic Myoelectric Control of a Dexterous Prosthetic Hand Benjamin Kent, Erik Engeberg	2235
	Bioinspired Grasp Primitives for a Dexterous Artificial Hand to Catch and Lift a Cylinder John Lavery, Ben Kent, Erik Engeberg	2237
	Tele-Impedance: Preliminary Results on Measuring and Replicating Human Arm Impedance in Tele Operated Robots arash ajoudani, Nikos G. Tsagarakis, Antonio Bicchi	2239
	Balance Control of Humanoid Robots in Response to Disturbances in the Frontal Plane Yuki Yoshida, Kohei Takeuchi, Daisuke Sato, Dragomir Nenchev	2241
	Online Remote Control of a Robotic Hand Configurations Using sEMG Signals on a HanJin LEE, Sin-Jung Kim, Keehoon Kim, Myoung Soo Park, Sung-Kyun Kim, Jong Hveon Park. Sang-Rok Oh	2243
	Robotic Hand Biomimicry: Lateral Finger Joint Force and Position Feedback During Contour Interaction Benjamin A. Kent, Erik D. Engeberg	2245
	Robot Assisted Interactive Sign Language Tutoring Game Hatice Kose, Rabia Yorganci, Itauma Isong Itauma	2247
	The locomotion capabilities of the EPFL jumpglider: A hybrid jumping and gliding robot Mirko Kovac, Wassim Hraiz, Oriol Fauria, Jean-Christophe Zufferey, Dario Floreano	2249

	Backdrivable Periodic Finger Joint Synergies to Unscrew and Screw Objects Using Human Observations Applied to a Dexterous Robotic Hand Nareen Karnati, Ben Kent, Erik D. Engeberg	2251
SA1-5	5: Motion Measurement and Estimation	
	A Real-time Intelligent Shoe System for Fall Detection Yanbo Tao, Huihuan Qian, Meng Chen, Xin Shi, Yuandong Sun, Yangsheng Xu	2253
	A Wearable Wireless Fall Detection System with Accelerators Diansheng Chen, Wei Feng, Yu Zhang, Xiyu Li, Tianmiao Wang	2259
	New Method for Slip and Tire Force Estimation of Wheeled Mobile Robot on Inclined Xiaorui Zhu, Chunxin Qiu, Leiming Guo, Yanmin Zhang	2264
	A registration algorithm for on-line measuring the rotational velocity of a table tennis ball Chunfang Liu, Yoshikazu Hayakawa, Akira Nakashima	2270
	Measuring Geometrical Errors of Linear Axis of Machine Tools Based on the Laser Zhenjiu Zhang, Hong Hu	2276
SA1-6	6: Hardware and Software Architecture for Robots	
	Hardware and Software Architecture of a Bimanual Mobile Manipulator for Industrial Andreas Hermann, Zhixing Xue, Steffen W. Ruehl, Ruediger Dillmann	2282
	An Organic, Real-Time Middleware Architecture for Distributed Industrial Robot System Youdong chen, Zhou jiang, Hongxing Wei	2289
	Design of a Scalable Real-Time Robot Controller and Application to a Dexterous Paul Thienphrapa, Peter Kazanzides	2295
	A Novel Multi-OS Architecture for Robot Application Qiang Yu, Hongxing Wei, Miao Liu	2301
	An Improved Time Delay Controller for Underwater Robot Jiansheng XU, Cenyu Yang	2307
SA1-7	7: Recent Results Session II	
SA2-1	1: Motion Control of Robots	
	Regressor-free robot joint position tracking with prescribed performance guarantees Yannis Karayiannidis, Zoe Doulgeri	2312
	Robust Residuals Generation and Evaluation Using Bond Graph and Linear Filtering Youcef TOUATI, Belkacem OULD BOUAMAMA, Rochdi MERZOUKI	2318
	Residual Vibration Suppression for Robot Manipulator Attached to a Flexible Link by Using Soft Computing Techniques Akira Abe	2324
	Adaptive and Repetitive Controller for Robotic Manipulators with Slowly Updating Scheme Using B-Spline Shape Function Pannatee Rakprayoon, Peerayot Sanposh, Nattapon Chaiyopitak	2330
	A Linked Velocity Profile Design for Effective Motion Control of Hydraulic Systems Sung Su Yoon, Hung Van Hoang, Jae Wook Jeon	2336

SA2-2: Robot Force Control

	Force Control of an Upper limb Exoskeleton for Virtual Reality using Impedance Control Chaiyaporn Silawatchananai, Manukid Parnichkun	2342
	Robotic Table Tennis based on Physical Models of Aerodynamics and Rebounds Akira Nakashima, Yuki Ogawa, Chunfang Liu, Yoshikazu Hayakawa	2348
	Point-Contact Type Foot with Springs and Landing Control for Biped Walking on Rough Moyuru Yamada, Shigenori Sano, Naoki Uchiyama	2355
	Ground Following Locomotion of a Robot Inspired by Pill Bugs Jongwon Park, Young Kook Kim, Won Suk Jung, Kyung-Soo Kim, Soohyun Kim	2361
	Unknown Constrained Mechanisms Operation based on Dynamic Hybrid Compliance Dedi Ma, Hesheng Wang, Weidong Chen	2366
SA2-3	: Humanoid Robots II	
	Emulating Human Leg Impairments and Disabilities on Humanoid Robots Walking Sébastien Lengagne, Abderrahmane Kheddar, Sébastien Druon, Eiichi Yoshida	2372
	Development of An Android Robot for Psychological Support in Medical and Welfare Masahiro YOSHIKAWA, Yoshio MATSUMOTO, Masahiko SUMITANI, Hiroshi	2378
	Development of Musculoskeletal Humanoid Kenzoh with Mechanical Compliance Changeable Tendons by Nonlinear Spring Unit Yuto Nakanishi, Tamon Izawa, Masahiko Osada, Nobuyuki Ito, Shigeki Ohta, Junichi Urata. Masavuki Inaba	2384
	Development of Humanoid with Distributed Soft Flesh and Shock-Resistive Joint Mechanism for Self-Protective Behaviors in Impact from Falling Down Kazuya Kobayashi, Tomoaki Yoshikai, Masayuki Inaba	2390
	A model of the humanoid body for self collision detection based on elliptical capsules Chioniso Dube, Mohohlo Tsoeu, Jonathan Tapson	2397
SA2-4	: Video Session II: Robotics	
	Towards Automated Micro-/Nano-scale Manipulation, Separation, Assembly, and Fabrication by Optically-Induced Dielectrophoresis Shue Wang, Wenfeng Liang, Yanli Qu, Zaili Dong, Gwo-Bin Lee, Wen J. Li	2403
	Experiments on Detecting the Deformation of Pipelines Based on A Moving 2D Laser Rang Finder Jiangang Qiu, Zhangjun Song, Jianwei Zhang	2405
	3D object tracking using computer graphics and edge Chuantao Zang, Koichi Hashimoto, Jungjae Moon	2407
	Self-assembly and Locomotion of Diverse Structures for Swarm Robots on Adaption Hongxing Wei, Haiyuan Li, Youdong Chen, Jindong Tan	2409
	Experimental Study of Cooperative Obstacle Avoidance between Aerial and Ground Vehicles Using Multi-RFRs Testbed Zheng Wang, Feng Gu, Yuqing He, Jianda Han, Yuechao Wang	2411
	A Micro Robot with the Ability of Fly and Adhesion Yong Liu, Guoxin Sun, Heping Chen	2413

	The Superior Mobility and Function of W-Climbot Illustrated by Experiments Haifei Zhu, Yisheng Guan, Wenqiang Wu, Xuefeng Zhou, Lianmeng Zhang, Xianmin Zhang. Hong Zhang	2415
	Experimental Study of Vision Sensor Based Multiple Robots Active Cooperative Observation Using Multi-RFRs Testbed Feng Gu, Zheng Wang, Yuqing He, Jianda Han, Yuechao Wang	2417
	Trajectory Planning for Human Host Tracking and Following of Slave Mobile Robot on Service-Related Tasks Chin-Lung Chen, Chih-Chung Chou, Feng-Li Lian	2419
	OP:Sense – An integrated rapid development environment in the context of robot assisted surgery and operation room sensing Philip Nicolai, Tim Beyl, Holger Moennich, Joerg Raczkowsky, Heinz Wörn	2421
SA2-	5: Sensing for Tracking	
	Three Dimensional Low-Speed Motion Tracking Using Micro Inertial Measurement Unit and Monocular Visual Sensor Kin Kwok LAM, Guanglie ZHANG, Wen Jung LI	2423
	A Miniature Low-Power Sensor System for Real Time 2D Visual Tracking of LED Georg Müller, Jorg Conradt	2429
	A ROTATING ADAPTIVE MODEL FOR HUMAN TRACKING IN THERMAL CATADIOPTRIC OMNIDIRECTIONAL VISION YAZHE TANG, YOUFU LI, TIANXIANG BAI, XIAOLONG ZHOU	2435
	A Novel Vision-based Multi-hand Tracking Algorithm For Human Computer Interface Bin Luo, Quangyong Huang, Sheng Bi, Yikai Ma	2441
	Real-Time Frame-Straddling-Based Optical Flow Detection Lei Chen, Hua Yang, Takeshi Takaki, Idaku Ishii	2447
SA2-6	6: Haptics Interfaces	
	A new encounter type haptic device with an actively driven pen-tablet LCD panel Motoki Takagi, Jumpei Arata, Akihito Sano, Hideo Fujimoto	2453
	Spectrum-Based Vibrotactile Footstep-Display for Crinkle of Fragile Structures Shogo Okamoto, Shun Ishikawa, Hikaru Nagano, Yoji Yamada	2459
	CVD Based Electrotactile Haptic Rendering System:Design and Testing John Gregory, Yantao Shen, Ning Xi	2465
	Haptic Feature Extraction from a Biomimetic Tactile Sensor: Force, Contact Location and Curvature Nicholas Wettels, Gerald Loeb	2471
	Effects of Presentation of Shear Deformation to Finger Pad on Tracing Movements Kenya Matsui, Shogo Okamoto, Yoji Yamada	2479
SA2-7	7: Recent Results Session III	
SP1-	1: Robot Learning	
	ONLINE UNSUPERVISED CUMULATIVE LEARNING FOR LIFE-LONG ROBOT	2486

Y. GATSOULIS, C. BURBRIDGE, T.M. MCGINNITY

A	Robot self-preservation and adaptation to user preferences in game play, a preliminary Álvaro Castro-González, Farshid Amirabdollahian, Daniel Polani, María Malfaz, Miguel A. Salichs	2491
	Problem Solving and Learning for a Humanoid Robot Dongkyu Choi, KangGeon Kim, Doik Kim, Bum-Jae You	2499
	Real-time hybrid learning and recognition system with software-hardware cooperation Fengwei An, Hans Mattausch, Tetsushi Koide	2505
P	Control of Multi-legged Robot Using Reinforcement Learning with Body Image and Application to a Real Robot Kazuya Nishigai, Kazuyuki Ito	2511
	Multimodal Sound Localization for Humanoid Robots Based on Visio-Auditive Learning Karim Youssef, Sylvain Argentieri, Jean-Luc Zarader	2517
SP1-2:	Novel Actuators I	
	Development of a Thin Electromagnetic Wobble Motor Masaki MIYAKE, Koichi SUZUMORI, Kazuo UZUKA	2523
F	Reliability-Based Design Optimization of Electrothermal Microactuators Using Hybrid Reliability Approach Po Ting Lin, Hae Chang Gea, Limei Xu	2529
	Dynamitic Model and Stability Analysis of Force-Driven Series Elastic Actuator Hong-Wen Ma, Li –Quan Wang, Peng Zhao, Lin Yu	2535
	Control of Pneumatic Actuator in Consideration of Hysteresis Characteristics Akihito Ito, Naohiko Washizawa, Koh Kiyoto, Nobuyuki Furuya	2541
	Development of Cylindrical Magnetorheological Fluid Brake for Virtual Cycling System Takehito Kikuchi, Keigo Kobayashi	2547
	Preliminary Design Analysis of a Novel Variable Impedance Compact Compliant Haoyong Yu, S.M.Mizanoor Rahman, Chi Zhu	2553
SP1-3:	Mobile Robots I	
	A Novel Frame Climbing Robot: Frambot Wing Kwong Chung, Yangsheng Xu	2559
N	Evolutionary Development of an Optimized Manipulator Arm Morphology for Manipulation and Rover Locomotion Alexander Dettmann, Malte Roemmermann, Florian Cordes	2567
	Analyses and Testing of New Mobility System for Lunar Rover Shin-Ichiro Nishida, Yuki Okabayashi, Sachiko Wakabayashi	2574
F	Design of Novel Terrain Adaptable Cascading Wheeled Mobile Platform with Passive Planetary Swing Structure Jianjun Yuan, Weijun Zhang, Yongtao Song, Liang Du, Feng Li	2580
	Locomotion Modes for a Hybrid Wheeled-Leg Planetary Rover Florian Cordes, Alexander Dettmann, Frank Kirchner	2586
	A study of pipe-cleaning and inspection robot Truong-Thinh Nguyen, Ngoc-Phuong Nguyen, Phuoc-Tho Tuong	2593

SP1-4: Mapping

	· · · -	
	Dictionary-based Map Compression Using Geometric Priors Tomomi Nagasaka, Kanji Tanaka	2599
	A Vision-based System for Mapping the Inside of a Pipe Sabine El Kahi, Daniel Asmar, Adel Fakih, Juan Nieto, Eduardo Nebot	2605
	Grammar-based Map Compression Using Manhattan World Priors Kensuke Kondo, Kanji Tanaka, Tomomi Nagasaka	2612
	RGB-D Fusion Toward Accurate 3D Mapping Ke Xu, Ruiqing Fu, Sheng Wang, Xinyu Wu	2618
	Exploration in a Boundary Environment with Unknown Obstacles Using Reaction- Diffusion Equation on a Graph Theeraphol Wattanavekin, Jun Ota	2623
	One-to-one Feature Matching with Inaccurate Maps Chatavut Viriyasuthee, Gregory Dudek	2629
SP1-	5: Human-Robot Interaction I	
	Development of a 3D Simulation which can provide better understanding of trainee's performance of the task using Airway Management Training System WKA-1RII Chunbao Wang, Yohan Noh, Hiroyuki Ishii, Atsuo Takanishi	2635
	Animating Complex Articulated Robots Without a Rigid Hierarchy of Transformations Marta Becker Villamil, Arthur Tórgo Gómez, José Vicente Canto dos Santos, Bruno	2641
	Pushing Around a Robot: Force-Based Manual Control of the Six-Legged Walking Robot LAURON Michael Goeller, Arne Roennau, Anton Gorbunov, Georg Heppner, Ruediger Dillmann	2647
	A Novel HCI based on EMG and IMU Anbin Xiong, Yang Chen, Xingang Zhao, Jianda Han, Guangjun Liu	2653
	Constant execution time multiple human detectors regardless of target number increase based on CHLAC Yusuke Kitano, Ming Ding, Hiroshi Takemura, Hiroshi Mizoguchi	2658
	Learning Dynamical Representations of Tools for Tool-Use Recognition Yan Wu, Yiannis Demiris	2664
SP1-	6: Intelligent Control of Robots	
	Learning Parametric Inverse Dynamics Models from Multiple Conditions for Fast Adaptive Computed Torque Control Yasuhito Horiguchi, Takamitsu Matsubara, Masatsugu Kidode	2670
	Learning Motor Skills with Non-Rigid Materials by Reinforcement Learning Daisuke Shinohara, Takamitsu Matsubara, Masatsugu Kidode	2676
	Reinforcement Learning of Ball-in-a-cup Playing Robot Bojan Nemec, Ales Ude	2682
	Fuzzy Control for Two-Link Arm Robot via LPV T-S Fuzzy Models Wen-Jer Chang, Che-Pin Kuo, Po-Hsun Chen	2688

Hybrid Adaptive Impedance Force Controller using Bang-Bang and Particle Swarm Optimization Approaches Sarucha YanYong, Somyot Kaitwanidvilai	2694
A Cooperative Search Strategy(CSS) for Moving Targets in Dynamic Environment Minhyeok Kwon, Yeonsik Kang, Heonyoung Lim, Changhwan Kim, Gwitae Park	2698
SP2-1: Modular and Multi-Agent Systems	
MDL: A Module Description Language for Chained Heterogeneous Modular Robots Alberto Brunete, Miguel Hernando, Ernesto Gambao, Jose Emilio Torres, Álvaro Castro-González	2706
Utilizing the Full Potential of a New Flexible Platform in Modular Self-Reconfigurable Mobile Robotics Rene Matthias, Heinz Wörn	2712
Use of Genetic Algorithms for Target Distribution and Sequencing in Multiple Robot Alberto Valero-Gomez, Julio Valero-Gomez, Luis Moreno, Alvaro Castro-Gonzalez	2718
Human-like Gradual Multi-agent Q-learning using the concept of Behavior-based Robotics for Autonomous Exploration DIPNARAYAN RAY, AMIT MANDAL, SOMAJYOTI MAJUMDER, SUMIT	2725
CoHoN: A Middleware for Robots in Heterogeneous Communication Environments with Changing Topology Steffen Planthaber, Jan Vogelgesang, Eugen Nießen	2733
SP2-2: Novel Actuators II	
Fabrication a Practical SMA Actuated Gripper ALIREZA KHODAYARI, MOHAMAD MAHDI KHEIRIKHAH, BANAFSHE ZAREFAR	2739
Investigation on the optimal preloading of thin polymer-based adhesives: a quasi-static Ausama Ahmed, Carlo Menon	2744
Tracking Control with Hysteresis Compensation for Manipulator Segments driven by Pneumatic Artificial Muscles Frank Schreiber, Yevgen Sklyarenko, Kathrin Schlüter, Jan Schmitt, Sven Rost, Annika Raatz, Walter Schumacher	2750
Mechanical Design and Accuracy of A Miniature Translational Parallel Mechanism for Active Scanning Probe Takashi HARADA, Ke DONG	2756
Numerical_Modeling_and_Analysis_of_Piezoelectric_Unimorph_Transducer Fudong Zhang, Anjing Li, Xuesheng Li, Min Chen, Yuzhuo Ren	2762
ADEA—Active Variable Stiffness Differential Elastic Actuator: Design and Application for Safe Robotics Ren-Jeng Wang, Han-Pang Huang	2768
SP2-3: Mobile Robots II	
Track Tension Optimization for Stair-Climbing of a Wheelchair Robot with Variable Geometry Single Tracked Mechanism Suyang Yu, Ting Wang, Zhidong Wang, Yuechao Wang, Xiaofan Li	2774
Additional DOFs and Sensors for Bio-inspired Locomotion: Towards Active Spine, Ankle Joints, and Feet for a Quadruped Robot	2780

Daniel Kuehn, Felix Grimminger, Frank Be Moritz Schilling, Marc Simnofske, Tobias S	einersdorf, Felix Bernhard, Armin Burchardt, Stark. Martin Zenzes. Frank Kirchner	
Gallop with Speed Change for Quadruped Seung Gyu Roh, Jong Hyeon Park	Robots	2787
Effect of Flexible Spine on Stability of a Pa Mohammad Hasan Haj Molla Ali Kani, Mo Majid Nili Ahmadabadi	·	2793
Co-evolution of Morphology and Control of Ken Larpin, Soha Pouya, Jesse van den k	f Virtual Legged Robots for a Steering Task Kieboom, Auke Jan Ijspeert	2799
A Study of Active-Wheel Snake Robot Loc Thanniti Khunnithiwarawat, Thavida Mane		2805
SP2-4: Vision for Object Tracking		
Fast Outcome Prediction based on Slow O Approach in Air hockev game Amin Ghazvini, Hadi Moradi, Majid Nili Ah	·	2810
3D Position based Multiple Human Servoi Suraj Nair, Emmanuel Dean-Leon, Alois K	ng by Low-Level-Control of 6 DOF Industrial	2816
Web Mining Driven Semantic Scene Unde Kai Zhou, Karthik Mahesh Varadarajan, M		2824
Self-Monitoring to Improve Robustness of Thomas Mörwald, Michael Zillich, Johann	•	2830
Image Based Control of a Space Surveilla Drago Matko, Tomaž Rodič, Gregor Klanč		2838
Visual Servo Microscope for Locking on S Mitsunori Maru, Min Chen, Koichi Hashim	-	2844
SP2-5: Human-Robot Interaction II		
A multi-modal human machine interface for face movements Lai Wei, Huosheng Hu	or controlling an intelligent wheelchair using	2850
EMG-Based Upper-Limb Rehabilitation via Boonyarat Viriyasaksathian, Sarawin Khei	a Music Synchronization with Augmented mmachotikun, Panya Kaimuk, Yodchanan	2856
Visual Tracking by Partition-based Histogr Jae-Yeong Lee, Wonpil Yu	ram Backprojection and Maximum Support	2860
Localization and Tracking for Simultaneou Method and Probability Hypothesis Densit Quang Nguyen, JongSuk Choi		2866
Effect of Emotional Synchronization using Robot Communication Yi Li, Minoru Hashimoto	Facial Expression Recognition in Human-	2872
What Are Required to Simulate Interaction Platform for Human-Robot Interaction		2878

SP2-6: Control for Human-Robot Interaction

Basic Study for a New Assistive System Based on Brain Activity associated with Spatial Perception Task during Car driving Shunji Shimizu, Noboru Takahashi, Hiroaki Inoue, Hiroyuki Nara, Fumikazu Miwakeichi, Nobuhide Hirai, Senichiro Kikuchi, Eiju Watanabe, Satoshi Kato	2884
Control of a Car with a Trailer using the Driver Assistance System Jae II Roh, Hyunsuk Lee, Woojin Chung	2890
A New Approach Using Neural Oscillator for Rhythmic Power Assist Xia Zhang, Minoru Hashimoto	2896
Artificial Companion: building a impacting relation Sylvie Pesty, Dominique Duhaut	2902
Comprehensive State Transition Analysis Using Simplified Primitive Static States in Construction Machinery Mitsuhiro Kamezaki, Hiroyasu Iwata, Shigeki Sugano	2908
Multi-Objective Control through Evolutionary Neuro-Controller for Interactive Mobile Robot Manipulator Amal Meddahi, Ryad Chellali, Khelifa Baizid	2914