2013 IEEE Workshop on Advanced Robotics and its Social Impacts

(ARSO 2013)

Tokyo, Japan
7-9 November 2013

Content List of 2013 IEEE Workshop on Advanced Robotics and its Social Impacts

Technical Program for Thursday November 7, 2013

ThC1	**Room 401**
Assistive and Service Robots 1 (Regular Session)	
Chair: Tasaki, Tsuyoshi	Toshiba Corp.

13:00-13:20	ThC1.1

Study of Human Motion Generation Based on Redundancy of Musculoskeletal Structure: Analysis of Potential Generated by Internal Force for Two-Link System, pp. 1-6.

Kino, Hitoshi	Fukuoka Inst. of Tech.
Ochi, Hiroaki	Fukuoka Inst. of Tech.
Tahara, Kenji	Kyushu Univ.
Matsutani, Yuki	Kyushu Univ.
Ishibashi, Ryota	Tokyo Metropolitan Univ.

13:20-13:40	ThC1.2

Feed-Forward Positioning of Musculoskeletal-Like Robotic Systems with Muscular Viscosity: Determination of an Adequate Internal Force, pp. 7-12.

Matsutani, Yuki	Kyushu Univ.
Ochi, Hiroaki	Fukuoka Inst. of Tech.
Kino, Hitoshi	Fukuoka Inst. of Tech.
Tahara, Kenji	Kyushu Univ.
Yamamoto, Motoji	Kyushu Univ.

13:40-14:00	ThC1.3

Analysis of Contribution of Muscle Synergies on Sit-To-Stand Motion Using Musculoskeletal Model, pp. 13-18.

An, Qi	The Univ. of Tokyo
Ishikawa, Yuki	The Univ. of Tokyo
Nakagawa, Junki	The Univ. of Tokyo
Oka, Hiroyuki	The Univ. of TOkyo
Yamakawa, Hiroshi	The Univ. of TOkyo
Yamashita, Atsushi	The Univ. of Tokyo
Asama, Hajime	The Univ. of Tokyo

14:00-14:20	ThC1.4

Socio-Economic Impact of Medical Lower-Limb Exoskeletons, pp. 19-26.

Ferrati, Francesco	Univ. of Padua
Bortoletto, Roberto	Univ. of Padua
Menegatti, Emanuele	The Univ. of Padua
Pagello, Enrico	Univ. of Padua

14:20-14:40	ThC1.5

Development of Parallel Manipulator Sit to Stand Assistive Device for Elderly People, pp. 27-32.

nour, omar	E-JUST Univ.
Asker, Ahmed	Egypt-Japan Univ. of Science and Tech.
Fath El-Bab, Ahmed	Egypt-Japan Univ. of Science and Tech. (on leave from
Assal, Samy F. M.	Faculty of Engineering, Tanta Univ. Tanta, Egypt
Ramadan, Ahmed Ahmed	Assistant Prof at Tanta Univ.
Sessa, Salvatore	Waseda Univ.
AboIsmail, Ahmed	Egypt-Japan Univ. of Science and Tech. (EJUST)

14:40-15:00	ThC1.6

Robot Development in Cooperation with Patients: Application of Hyper-Tether to Support Home Oxygen Therapy Patients, pp. 33-38.

Allan, Ben	Tokyo Inst. of Tech.
Endo, Gen	Tokyo Inst. of Tech.
Iemura, Yu	Tokyo Inst. of Tech.
Fukushima, Edwardo F.	Tokyo Inst. of Tech.
Iribe, Masatsugu	Osaka Electro-Communication Univ.
Takubo, Toshio	Tokyo Women's Medical Univ.
Ohira, Mineko	East Nagano Hospital

ThC2	**Room 402**

Next Phase of RT Middleware and Framework for RT Service (Organized Session)

Chair: Matsuhira, Nobuto	Shibaura Inst. of Tech.
Co-Chair: Narita, Masahiko	Advanced Inst. of Industrial Tech.

13:00-13:20	ThC2.1

Study of Framework Based on Roles for Application Development of Service Robots, pp. 39-44.

Ceron Lopez, Arturo Eduardo	Tokyo Inst. of Tech.
Fukushima, Edwardo F.	Tokyo Inst. of Tech.
Kitano, Satoshi	Tokyo Inst. of Tech.
Endo, Gen	Tokyo Inst. of Tech.

13:20-13:40	ThC2.2

Prototype Development of Robot System Using RT Middleware and RSNP Network Protocol, pp. 45-50.

Matsuhira, Nobuto	Shibaura Inst. of Tech.
Namatame, Shogo	Shibaura Inst. of Tech.
Ishida, Shinichi	Shibaura Inst. of Tech.
Yamaguchi, Toru	Tokyo Metropolitan Univ.

13:40-14:00	ThC2.3

Objective of RT-Middleware Contest, pp. 51-56.

Yamashita, Tomoki	Mayekawa MFG. Co., Ltd.
Kotoku, Tetsuo	National Inst. of AIST
Hirai, Shigeoki	CHIBA Inst. OF Tech.

14:00-14:20	ThC2.4

Robotic Service Coordination for Elderly People and Caregivers with Ubiquitous Network Robot Platform, pp. 57-62.

Shiomi, Masahiro	ATR
Kamei, Koji	Advanced Telecommunications Res. Inst.
Kondo, Tadahisa	Advanced Telecommunications Res. Inst. International
Miyashita, Takahiro	ATR
Hagita, Norihiro	ATR

14:20-14:40	ThC2.5

Commonsense Knowledge Extraction for Tidy-Up Robotic Service in Domestic Environments, pp. 63-69.

Skulkittiyut, Weerachai	Shibaura Inst. of Tech.
Lee, Haeyeon	Toyota Motor Co
Ngo, Trung Lam	Hanoi Univ. of Science and Tech.
Tran, Minh Quang	National Inst. of Informatiocs
Baharudin, Muhammad Ariff Bin	Shibaura Inst. of Tech.
Fujioka, Takashi	Shibaura Inst. of Tech.
Kamioka, Eiji	Shibaura Inst. of Tech.
Mizukawa, Makoto	Shibaura Inst. of Tech.

14:40-15:00	ThC2.6

An Interactive Support System for Activating Shopping Streets Using Robot Partners in Informationally Structured Space, pp. 70-75.

Shimizu, Yuki	Tokyo Metropolitan Univ.
Yoshida, Shogo	Tokyo Metropolitan Univ.
Kubota, Naoyuki	Tokyo Metropolitan Univ.
Shimazaki, Jun	Tokyo Metropolitan Univ.

ThD1	Room 401
Assistive and Service Robots 2 (Regular Session)	
Chair: Hori, Toshio	Nat. Inst. of Adv. Ind. Science & Tech.

15:20-15:40	ThD1.1

Obstacle Avoidance Using Haptics and a Laser Rangefinder, pp. 76-81.

Innala Ahlmark, Daniel	Luleå Univ. of Tech.
Fredriksson, Håkan	Luleå Univ. of Tech.
Hyyppä, Kalevi	Luleå Univ. of Tech.

15:40-16:00	ThD1.2

Fall Detection and Prevention in the Elderly Based on the ZMP Stability Control, pp. 82-87.

Di, Pei	Nagoya Univ.
Huang, Jian	Huazhong Univ. of Science and Tech.
Nakagawa, Shotaro	Nagoya Univ.

Sekiyama, Kosuke	Nagoya Univ.
Fukuda, Toshio	Meijo Univ.

16:00-16:20	ThD1.3

Analysis of Electromyography and Skin Conductance Response During Rubber Hand Illusion, pp. 88-93.

Tsuji, Takuma	The Univ. of Tokyo
Yamakawa, Hiroshi	The Univ. of TOkyo
Yamashita, Atsushi	The Univ. of Tokyo
Takakusaki, Kaoru	Asahikawa Medical Coll.
Maeda, Takaki	Keio Univ. School of Medicine
Kato, Motoichiro	Keio Univ. School of Medicine
Oka, Hiroyuki	The Univ. of TOkyo
Asama, Hajime	The Univ. of Tokyo

16:20-16:40	ThD1.4

Creating Socially Acceptable Robots: Leaning Grasp Configurations for Object Handovers from Demonstrations, pp. 94-99.

Chan, Wesley Patrick	Univ. of Tokyo
Kumagai, Iori	Univ. of Tokyo
Nozawa, Shunichi	The Univ. of Tokyo
Kakiuchi, Yohei	The Univ. of Tokyo
Okada, Kei	The Univ. of Tokyo
Inaba, Masayuki	The Univ. of Tokyo

16:40-17:00	ThD1.5

Towards Reorganization of International Classification of Functioning, Disability and Health for Design of Assistive Robots, pp. 100-105.

Tanaka, Hideyuki	National Inst. of AIST
Matsumoto, Yoshio	AIST

ThD2	Room 402
Localization and Visual Applications (Regular Session)	
Chair: Yamazaki, Kimitoshi	Shinshu Univ.

15:20-15:40	ThD2.1

Mobile Robot Self Localization Based on Multi-Antenna-RFID Reader and IC Tag Textile, pp. 106-112.

Takahashi, Yasutake	Univ. of Fukui
Ii, Yuta	Univ. of Fukui
Mi, Jian	Univ. of Beijing Information Science & Tech.
Wang, Jun	Univ. of Beijing Information Science & Tech.
Maeda, Yoichiro	Univ. of Fukui
Takeda, Masahiko	I.F.Sangyo Co.,Ltd.
Nakamura, Ryuji	Art Finex Co.,Ltd.
Miyoshi, Hiroaki	Art Finex Co.,Ltd.
Takeuchi, Hidenori	UTIC Co., Ltd.
Yamashita, Yoshinori	Univ. of Fukui Hospital
Sano, Hiroshi	Industrial Tech. Center of Fukui Prefecture
Masuda, Atsuji	Industrial Tech. Center of Fukui Prefecture

15:40-16:00	ThD2.2

A Gaussian Particle Filter Based Factorised Solution to the Simultaneous Localization and Mapping Problem, pp. 113-118.

Rao, Akshay	NTU
Wang, Han	Nanyang Tech. Univ.
Mullane, John	Nanyang Tech. Univ.
Hu, Zhencheng	Kumamoto Univ.

16:00-16:20	ThD2.3

A View-Based Wearable Personal Navigator with Inertial Speed Estimation, pp. 119-124.

Harada, Masashi	Toyohashi Univ. of Tech.
Miura, Jun	Toyohashi Univ. of Tech.
Satake, Junji	Toyohashi Univ. of Tech.

16:20-16:40	ThD2.4

Outdoor Environment Simulators for Vision-Based Safety Sensors — Artificial Sunlight Lampheads and Simulated-Snow Chamber —, pp. 125-130.

Sumi, Yasushi	National Inst. of Advanced Industrial ScienceandTechnology(A

Kim, Bong Keun   AIST
Matsumoto, Yoshio   AIST
Horiuchi, Eiichi   National Inst. of AIST
Matsumoto, Osamu   National Inst. of AIST
Ohba, Kohtaro   National Inst. of AIST

16:40-17:00   ThD2.5

Fuzzy-Based Illumination Normalization for Face Recognition, pp. 131-136.

Dewantara, Bima Sena Bayu   Toyohashi Univ. of Tech.
Miura, Jun   Toyohashi Univ. of Tech.

Technical Program for Friday November 8, 2013

FrC1	Room 401
Service Robot and Its Social Applications (Organized Session)	

Chair: Ohara, Kenichi	Meijo Univ.
Co-Chair: Sugahara, Yusuke	Kokushikan Univ.

14:00-14:20	FrC1.1

Smart Life Designed by Robotics and NEDO's Outlook on Robot Technologies, pp. 137-142.

Mano, Atsushi	NEDO

14:20-14:40	FrC1.2

A Field Study of the Human Support Robot in the Home Environment, pp. 143-150.

Hashimoto, Kunimatsu	Toyota Motor Corp.
Saito, Fuminori	Toyota Motor Corp.
Yamamoto, Takashi	Toyota Motor Corp.
Ikeda, Koichi	Toyota Motor Corp.

14:40-15:00	FrC1.3

Assistive System Research for Creative Life Management on Robotics and Home Economics, pp. 151-156.

Kakiuchi, Yohei	The Univ. of Tokyo
Nozawa, Shunichi	The Univ. of Tokyo
Yamazaki, Kimitoshi	Shinshu Univ.
Okada, Kei	The Univ. of Tokyo
Inaba, Masayuki	The Univ. of Tokyo

15:00-15:20	FrC1.4

Consideration and Evaluation of Benefits of Human Type Service Robots － the Report of Experimental Introduction to a Shopping Center －, pp. 157-163.

Takeuchi, Kiyoaki	Takerobo Corp.
Yoshimi, Takashi	Shibaura Inst. of Tech.
Hashimoto, Ken	Graduate School of Engineering and Science, Shibaura Inst. o
Tanaka, Toru	AFG Inc.

15:20-15:40	FrC1.5

A Method Improving Efficiency of Remote Operation for a Virtual Campus Tour Service Using Robots, pp. 164-169.

Kida, Takaaki	Advanced Inst. of Industrial Tech.
Kusu, Toshiyuki	Advanced Inst. of Industrial Tech.
Shimada, Tetsuya	Advanced Inst. of Industrial Tech.
Hoang, Van Dung	Univ. of Engineering and Tech. VNU Hanoi
Tran, Thi Minh Chau	Univ. of Engineering and Tech. VNU Hanoi
Tsuchiya, Yosuke	Advanced Inst. of Industrial Tech.
Narita, Masahiko	Advanced Inst. of Industrial Tech.
Kato, Yuka	Advanced Inst. of Industrial Tech.

15:40-16:00	FrC1.6

Interaction Robot System Considering Culture Differences, pp. 170-174.

Ho, YiHsin	Tokyo Metropolitan Univ.
sato-Shimokawara, Eri	Tokyo Metropolitan Univ.
Yamaguchi, Toru	Tokyo Metropolitan Univ.
Tagawa, Norio	Tokyo Metropolitan Univ.

FrC2	Room 402
Education and Edutainment Robots (Regular Session)	

Chair: Oyama, Eimei	AIST

14:00-14:20	FrC2.1

Stereotyped Behavior of Autistic Children with Lower IQ Level in HRI with a Humanoid Robot, pp. 175-180.

Shamsuddin, Syamimi	Univ. Teknologi MARA (UiTM) Shah Alam
Yussof, Hanafiah	Univ. Teknologi MARA
Mohamed, Salina	Univ. Teknologi MARA (UiTM) Shah Alam
Hanapiah, Fazah Akhtar	Univ. Teknologi MARA (UiTM) Shah Alam
Ismail, Luthffi Idzhar	Univ. Teknologi MARA (UiTM) Shah Alam

14:20-14:40	FrC2.2

Humanoid Robots Communication with Participants Using Sign Language: An Interaction Based Sign Language Game, pp. 181-186.

akalin, neziha	Istanbul Tech. Univ.
Uluer, Pinar	Galatasaray Univ.
Kose, Hatice	Istanbul Tech. Univ.
Ince, Gokhan	Istanbul Tech. Univ.

14:40-15:00	FrC2.3

Thymio II, a Robot That Grows Wiser with Children, pp. 187-193.

Riedo, Fanny	EPFL
Chevalier, Morgane	Ec. Pol. Fédérale de Lausanne
Magnenat, Stéphane	ETH Zürich
Mondada, Francesco	EPFL

15:00-15:20	FrC2.4

Robotics Education: A Case Study in Soft-Bodied Locomotion, pp. 194-199.

Yu, Xiaoxiang	ETH Zurich
Assaf, Dorit	Univ. of Zurich
Wang, Liyu	Bio-Inspired Robotics Lab. ETH Zurich
Iida, Fumiya	ETH Zurich

15:20-15:40	FrC2.5

Design and Development of a New Biologically-Inspired Mouth Mechanism and Musical Performance Evaluation of the WF-4RVI, pp. 200-205.

Solis, Jorge	Karlstad Univ. / Waseda Univ.
Ozawa, Kenichiro	Waseda Univ.
Petersen, Klaus	Waseda Univ.
Takanishi, Atsuo	Waseda Univ.

15:40-16:00	FrC2.6

Design Method of Multilateral Tele-Control for Multi-Client and Multi-Coupled Physical Model Server, pp. 206-211.

Miyoshi, Takanori	Toyohashi Univ. of Tech.
Terashima, Kazuhiko	Toyohashi Univ. of Tech.
IMAMURA, Takashi	Toyohashi Univ. of Tech.

FrD1	Room 401
Robot Design and System (Regular Session)	
Chair: Fukushima, Edwardo F.	Tokyo Inst. of Tech.

16:20-16:40	FrD1.1

Design of a Double-Tracked Wall Climbing Robot Based on Electrostatic Adhesion Mechanism, pp. 212-217.

Chen, Rui	Beihang Univ.
Liu, Rong	Beihang Univ.
Shen, Hua	Beihang Univ.

16:40-17:00	FrD1.2

Design and Basic Experiments of a Waterproof Mobile Robot Propelled by RS-Wave Mechanism, pp. 218-223.

Fu, Yu-Chun	Tokyo Inst. of Tech.
Hirose, Shigeo	Tokyo Inst. of Tech.
Endo, Gen	Tokyo Inst. of Tech.
Fukushima, Edwardo F.	Tokyo Inst. of Tech.

17:00-17:20	FrD1.3

Basic Consideration about Optimal Control of a Quadruped Walking Robot During Slope Walking Motion, pp. 224-230.

Komatsu, Hirone	Tokyo Inst. of Tech.
Endo, Gen	Tokyo Inst. of Tech.
Hodoshima, Ryuichi	Saitama Univ.
Hirose, Shigeo	Tokyo Inst. of Tech.
Fukushima, Edwardo F.	Tokyo Inst. of Tech.

17:20-17:40	FrD1.4

Towards Autonomous Excavation by Hydraulic Powered Shovel -- Measurement and Consideration on Bucket Posture and Body Stress in Digging Works, pp. 231-236.

Fujino, Ken'ichi	Public Works Res. Inst.
Moteki, Masaharu	Public Works Res. Inst.
Nishiyama, Akihiko	Public Works Res. Inst.
Yuta, Shinichi	Shibaura Inst. of Tech.

FrD2	Room 402
Advanced Robot Control (Regular Session)	

Chair: Hirata, Yasuhisa	Tohoku Univ.

16:20-16:40	FrD2.1

Deployment Control of Mobile Robots for Wireless Network Relay Based on Received Signal Strength, pp. 237-242.

Uchimura, Yutaka	Shibaura Inst. of Tech.
Saitou, Takaaki	Shibaura Inst. of Tech.
Nukada, Masanori	Shibaura Inst. of Tech.

16:40-17:00	FrD2.2

Active Contour Model-Based Control of Multi-Agent Robots, pp. 243-248.

Yamada, Kousuke	Waseda Univ.
Enriquez, Guillermo	Waseda Univ.
Hashimoto, Shuji	Waseda Univ.

17:00-17:20	FrD2.3

Evaluation of Advanced Trajectory Generators and a Robust Inverse Kinematic Solver with a 7-DOF Industrial Robot, pp. 249-254.

Miranda Canales, Ángel Giancarlo	National Tsing Hua Univ.
Huang, Shu	Industrial Tech. Res. Inst. Taiwan
Chang, Yung-Jung	National Chiao Tung Univ.
Huang, Han-Pang	National Taiwan Univ.

17:20-17:40	FrD2.4

Learning How to Approach Industrial Robot Tasks from Natural Demonstrations, pp. 255-260.

Michieletto, Stefano	Univ. of Padua
Chessa, Nicola	Univ. of Padua
Menegatti, Emanuele	The Univ. of Padua