

4TH IFToMM INTERNATIONAL SYMPOSIUM ON ROBOTICS AND MECHATRONICS

ISRM 2015

23-25 JUNE 2015, FUTUROSCOPE-POITIERS, FRANCE

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Program Overview

TUESDAY June 23, 2015

09:15	10:15	Registration
10:15	10:30	Opening Ceremony
10:30	12:20	Session 1 : Collaborative Robotics Chaired by: Jean-Pierre Gazeau, Institut P'
12:20	13:45	Lunch
13:45	15:30	Session 2: Robotics and Automation, an opportunity for regional industry Chaired by: Patrick Guillemot, CCI Poitou Charentes
15:30	16:30	Coffee break
16:30	17:00	Session 3: Industrial innovation & collaborative robotics Chaired by: Jean-Claude Potier, CRITT Informatique Poitiers
17:00	17:30	Panel discussion
18:00	-	Welcome reception, "Le Musée Auto Moto Vélo"

WEDNESDAY June 24, 2015

08:00	09:00	Registration
09:00	09:15	Opening Ceremony
09:15	10:00	Plenary session : Smart safety technology offers extraordinary potential for innovation in robotics Tomáš Prchal, Technology Manager CNC Robotics, B&R
10:00	10:30	Coffee break
10:30	12:10	Technical session 1: Mechanism and advanced mechanical design Chaired by: I-Ming Chen, Med Amine Laribi
12:10	14:00	Lunch
14:00	15:20	Technical session 2: Humanoid and legged robotics Chaired by: J. Alfonso Pamanes, Antoine Eon
15:20	15:50	Coffee break
15:50	16:50	Technical session 3: Parallel manipulators Chaired by: Damien Chablat, E. Castillo-Castaneda
17:30	-	Gala dinner, Futuroscope

THURSDAY June 25, 2015

08:00	09:00	Registration
09:00	10:20	Technical session 4: Medical robotics I Chaired by: Robert J. Webster III, Pierre Laguillaumie
10:20	10:50	Coffee break
10:50	12:10	Technical session 5: Medical robotics II Chaired by: Carl A. Nelson, Med Amine Laribi
12:10	14:00	Lunch
14:00	15:40	Technical session 6: Control and vision Chaired by: I-Ming Chen, Fabien Courrèges
15:40	16:10	Coffee break
16:10	17:50	Technical session 7: Advanced Robotics Chaired by: J. Gabriel Ramirez-Torres, Jean-Pierre Gazeau

Detailed program

WEDNESDAY June 24, 2015

Plenary session (9:15 – 10:00)

Smart safety technology offers extraordinary potential for innovation in robotics

Tomáš Prchal, Technology Manager CNC Robotics, B&R

Technical session 1: Mechanism and advanced mechanical design (10:30 – 12:10)

Chaired by: **I-Ming Chen**, Nanyang Technological University, Singapore

Med Amine Laribi, University of Poitiers, France

A study of structural stress analysis of reducers for supporting reliability design

Yuo-Tern Tsai, Kuan-Hong Lin, Department of Mechanical Engineering, De-Lin Institute of Technology, Taiwan

Kuo-Shong Wang, Department of Mechanical Engineering, National Central University, Taiwan

Structural and Dimensional Synthesis of Parallel Mechanism with Two End – Effectors

Zh. Baigunchekov, Lab. of Mechatronics and Robotics – Kazakh-British Technical University, Almaty, Republic of Kazakhstan

M. Kalimoldaev, Lab. of Mathematical Modeling and Cybernetics – Institute of Information and Computing Technologies, Almaty, Republic of Kazakhstan

M. Utenov, Dept. of Mechanics – Kazakh National University, Almaty, Republic of Kazakhstan

B. Arymbekov, T. Baigunchekov, Lab. of Mechatronics and Robotics – Kazakh-British Technical University, Almaty, Republic of Kazakhstan

Parametric Design Optimization of Two Link Robotic Manipulator

F. Z. Baghli, L. El Bakkali, O. Hamdoun, Modeling and Simulation of Mechanical Systems Laboratory, Faculty of Sciences, University Abdelmalek Essaadi, Tetouan, Morocco

Investigation of the Behaviour of a new Miniature Carbon-Paraffin Phase-change Actuator

P. Lazarou, C. Rotinat-Libersa, Interactive Robotics Laboratory, CEA LIST, France

Synthesis of driving mechanisms in robotics by combinatorial analysis method

Peter Mitrouchev, Jingtao Chen, Frédéric Maffray, Univ. Grenoble Alpes, G-SCOP, France

Yaqing Zheng, College of Mechanical Engineering and Automation, Huaqiao University, China

Technical session 2: Humanoid and legged robotics (14:00 – 15:20)

Chaired by: **J. Alfonso Pamanes**, Instituto Tecnológico de la Laguna, Mexico

Antoine Eon, University of Poitiers, France

Design and experiments on a new humanoid robot: TIDOM

A. Eon, P. Seguin, M. Arsicault, S. Zeghloul, Dept. GMS, Pprime Institute, CNRS - University of Poitiers - ENSMA, France

Experimental Inspiration and Rapid Prototyping of a novel Humanoid Torso

D. Cafolla, M. Ceccarelli, LARM, University of Cassino and South Latium, Cassino, Italy

Design of Robots Used As Education Companion and Tutor

Albert Causo, Giang Truong Vo, I-Ming Chen, Song Huat Yeo, Robotics Research Centre, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

Walking of a biped robot balanced with a reciprocating torso

Victor De-Léon-Gomez, Graduate and Research Division, Instituto Tecnológico de la Laguna, Torreón, México

J. Alfonso Pamanes, Department of Mechanical Engineering, Instituto Tecnológico de la Laguna, Torreón, México

Victor Santibanez, Graduate and Research Division, Instituto Tecnológico de la Laguna, Torreón, México

Technical session 3: *Parallel manipulators* (15:50 – 16:50)

Chaired by: **Damien Chablat**, Institut de Recherche en Communications et Cybernétique de Nantes, France
E. Castillo-Castaneda, Instituto Politecnico Nacional, Mexico

Determining the reachable workspace for 6-DOF Delta manipulators

C. K. Huang, K. Y. Tsai, School of Mechanical of engineering, National Taiwan University of Science and Technology
- Taiwan

A reconfiguration strategy of a parallel Delta-type robot to improve the kinematic performance

A. L. Balmaceda-Santamaria, E. Castillo-Castaneda, Instituto Politecnico Nacional, CICATA, Unidad Queretaro,
Mexico

Workspace and Singularity analysis of a Delta like family robot

R. Jha, D. Chablat, Institut de Recherche en Communications et Cybernétique de Nantes, France
F. Rouillier, INRIA Paris-Rocquencourt, Institut de Mathématiques de Jussieu, France
G. Moroz, INRIA Nancy-Grand Est, Université de Lorraine, LORIA, France

Optimal trajectory Planning of 3RRR Parallel Robot using ant colony algorithm

O. Hamdoun, L. El Bakkali, F. Z. Baghli, Modeling and Simulation of Mechanical Systems Laboratory, Abdelmalek
Essaadi, Faculty of Sciences, Tetouan, Morocco

THURSDAY JUNE 25, 2015

Technical session 4: *Medical robotics I* (9:00 – 10:20)

Chaired by: **Robert J. Webster III**, Vanderbilt University, USA
Pierre Laguillaumie, University of Poitiers, France

Force control implementation of a haptic device for medical use

H. Saafi, M.A. Laribi, S. Zegloul, Dept. GMSC, Pprime Institute, CNRS - University of Poitiers - ENSMA, France

Integration of Automated Camera Steering for Robotic Single-Site Surgery

Mohsen Zahiri, Carl A. Nelson, Dept. of Mechanical and Materials Engineering, University of Nebraska-Lincoln
R. Gonzalo Garay-Romero, Dept. of Mechanical Engineering; University of Portland
Dmitry Oleynikov, Center for Advanced Surgical Technology, Dept. of Surgery, University of Nebraska Medical
Center

Kinematic models of a new spherical parallel manipulator used as a master device

H. Saafi, M.A. Laribi, M. Arsicault, S. Zegloul, Dept. GMSC, Pprime Institute, CNRS - University of Poitiers -
ENSMA, France

Initial Experiments with the Leap Motion as a User Interface in Robotic Endonasal Surgery

T. A. Travaglini, P. J. Swaney, Dept. of Mechanical Engineering, Vanderbilt University, Nashville
Kyle D. Weaver, Dept. of Neurological Surgery, Vanderbilt University Medical Center, Nashville
R. J. Webster III, Dept. of Mechanical Engineering, Vanderbilt University, Nashville

Technical session 5: *Medical robotics II* (10:50 – 12:10)

Chaired by: **Carl A. Nelson**, University of Nebraska-Lincoln, USA
Med Amine Laribi, University of Poitiers, France

Mechatronic device to assist therapies during hand fingers rehabilitation

F. Aguilar-Pereyra, E. Castillo-Castaneda, CICATA, Instituto Politecnico Nacional, Queretaro, Mexico

Mechanical Design of a Craniotomy Robotic Manipulator Based on Optimal Kinematic and Force Performance

T. Essomba, C.-T. Wu, Medical Augmented Reality Research Center, Chang Gung Memorial Hospital, Taiwan
S.-T. Lee, Department of Neurosurgery, Chang Gung Memorial Hospital, Taiwan
C.-H. Kuo, Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taiwan

Dynamic Simulation of a Cable-Based Gait Training Machine

H. Lamine, S. Bennour, Laboratoire de Mécanique de Sousse, Ecole Nationale d'Ingénieurs de Sousse, Université de Sousse, Tunisie

L. Romdhane, Laboratoire de Mécanique de Sousse, Ecole Nationale d'Ingénieurs de Sousse, Université de Sousse, Tunisie - Mechanical Engineering Department, American University of Sharjah, Sharjah, UAE

An in vivo experiment to assess the validity of the Log Linearized Hunt-Crossley model for contacts of robots with the human abdomen

F. Courrèges, Team Mechatronics, XLIM Institute, University of Limoges, France

M. A. Laribi, M. Arsicault, S. Zeghloul, Dept. GMSC, Pprime Institute, CNRS - University of Poitiers - ENSMA, France

Technical session 6: Control and vision (14:00 – 15:40)

Chaired by: **I-Ming Chen**, Nanyang Technological University, Singapore

Fabien Courrèges, University of Limoges, France

Real-time Reconstruction of Heightmaps from Images taken with a UAV

Jose Gabriel Ramirez-Torres, Ander Larranaga-Cepeda, Laboratory of Information Technologies, CINVESTAV Tamaulipas, Mexico

A Human-Machine Interface with Unmanned Aerial Vehicles

D. Soto-Gerrero, J.-G. Ramirez-Torres, Laboratory of Information Technologies, CINVESTAV Tamaulipas, Mexico

Design and Simulation of Robot Manipulator Position Control System based on Adaptive Fuzzy PID Controller

F. Z. Baghli, L. El Bakkali, Modeling and Simulation of Mechanical Systems Laboratory, Faculty of Sciences, University Abdelmalek Essaadi, Tetouan

Generating the optimum dynamic trajectory of a hybrid cable-serial robot

M. Ismail, LMS, ENISO, Université de Sousse, Tunisia

S. Lahouar, LGM, ENIM, Université de Monastir, Tunisia

L. Romdhane, American University of Sharjah, UAE - LMS, ENISO, Université de Sousse, Tunisia

An Integrated Software Package for Advanced Industrial Robot Application

C. Liang, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

H. Yan, Department of Mechanical Engineering, National University of Singapore, Singapore

R. Li, Institute for Infocomm Research, Agency for Science Technology and Research, Singapore

I.-M. Chen, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

M.H. Ang Jr., Department of Mechanical Engineering, National University of Singapore, Singapore

Z. Huang, Institute for Infocomm Research, Agency for Science Technology and Research, Singapore

Technical session 7: Advanced Robotics (16:10 – 17:50)

Chaired by: **J. Gabriel Ramirez-Torres**, CINVESTAV Tamaulipas, Mexico

Jean-Pierre Gazeau, University of Poitiers, France

A method for the approximation of the multiple IK solutions of regular manipulators based on the uniqueness domains and using MLP

Vassilis C. Moulianitis, Department of Product and Systems Design Engineering, University of the Aegean, Greece

Evgenios M. Kokkinopoulos, Nikos A. Aspragathos, Mechanical Engineering and Aeronautics Department, University of Patras, Greece

An Approach to Symbolical Formulation of Forward Kinematics of Serial Robots

S. Krutikov, Dept. of Robotics and Mechatronics, Bauman Moscow State Technical University, Russia

Grasps Database Generator for Anthropomorphic Robotic Hands

H. Mnyusiwalla, P. Vulliez, J.P. Gazeau, S. Zeghloul, Dept. GMSC, Pprime Institute, CNRS - University of Poitiers - ENSMA, France

From human motion capture to industrial robot imitation

P. Laguillaumie, M. A. Laribi, P. Seguin, P. Vulliez, A. Decatoire, S. Zegloul, Dept. GMSC, Pprime Institute, CNRS
- University of Poitiers - ENSMA, France

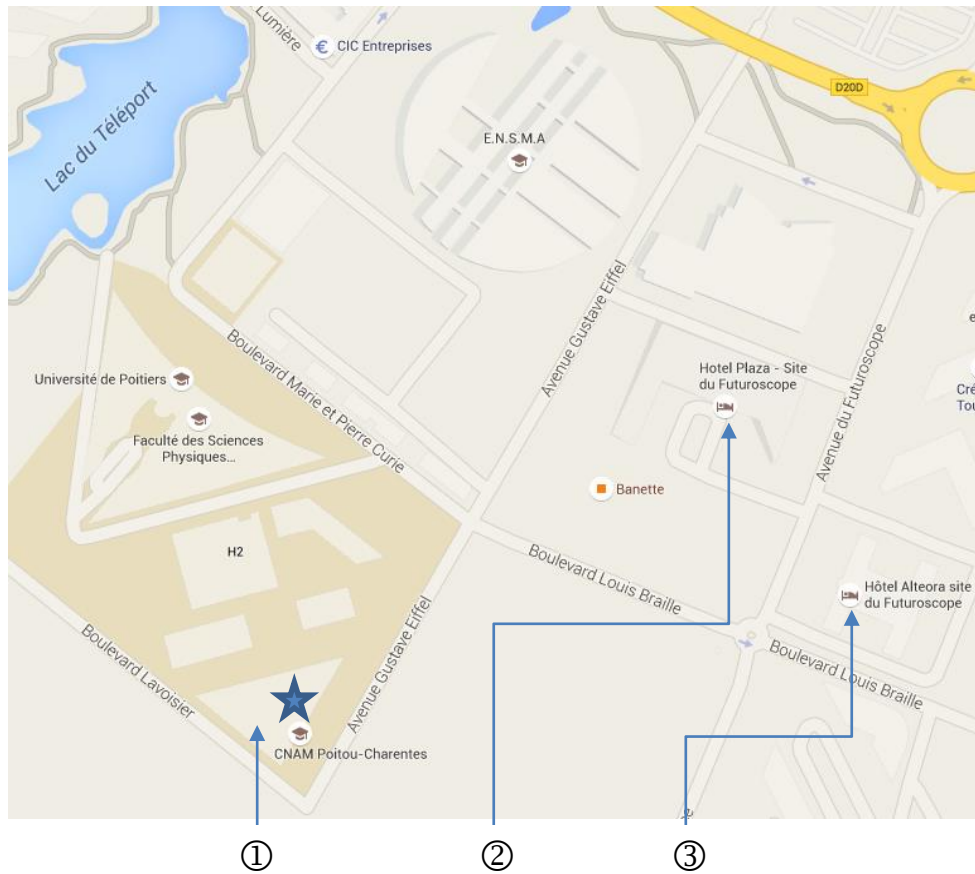
Dynamic decoupling of adjustable serial manipulators taking into account the changing payload

J. Xu, Dept. of M&CSE, INSA-Rennes, France

V. Arakelian, Dept. of M&CSE, INSA-Rennes, France - IRCCyN, UMR CNRS 6597, Nantes, France

J.-P. Le Baron, IRCCyN, UMR CNRS 6597, Nantes, France

Conference location



- ① : Localization of ISRM2015
- ② : Hotel Plaza
- ③ : Hotel Alteora