

CLAWAR 2013

Program

Sunday, July 14th

13.00 – 18.00	Registration open	Venue: Aerial Conference Centre Lobby
18.00 – 20.00	Welcome Reception Aerial Conference Centre, 7 th Floor, Building 10 235 Jones St., Broadway, Sydney 2007, University of Technology, Sydney	

Monday, July 15th

09.00 – 09.20	Conference Opening Session Aerial Conference Centre, 7 th Floor, Building 10 235 Jones St., Broadway, Sydney 2007	
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Keynote Address – 1

Session Chair: Gurvinder S. Virk

Date: Monday 15 July 2013		Venue: Harris, Jones, Broadway Rooms	
Time	Paper ID	Proc. Page	Presentation
09.20 – 10.20	4	8	Exoskeleton systems for medical and civilian applications <i>Homayoon Kazerooni</i>

10.20 – 10.40	Coffee Break	Venue: Lobby
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Session – A1: Multi-legged Robots

Session Chair: Manuel Armada

Date: Monday 15 July 2013		Time: 10.40 – 12.40	Venue: Harris Room
Time	Paper ID	Proc. Page	Presentation
10.40 – 11.00	73	511	A1.1 - Actuator sizing for highly dynamic quadruped robots based on squat jumps and running trots <i>Hamza Khan, Claudio Semini and Darwin Caldwell</i>
11.00 – 11.20	25	215	A1.2 - Adaptive control of leg position for hexapod robot based on somatosensory feedback and organic computing principles <i>Ahmad Al-Homsy, Jan Hartmann and Erik Maehle</i>
11.20 – 11.40	30	761	A1.3 - Biped walking over rough terrain by adaptive ground reference map <i>Ning Wu, Chee-Meng Chew and Aun Neow Poo</i>

11.40 – 12.00	53	471	A1.4 - Design and prototyping of active-suspension-based 4-legged running robot with anteroposterior asymmetry in body <i>Kyoko Nishimura, Kazuyoshi Tsutsumi, Shinji Sakio and Koji Shibuya</i>
12.00 – 12.20	19	435	A1.5 - Development of hexapod robot supported mechanically using pneumatic rubber artificial muscles <i>Hiroki Tomori, Yusuke Hirata, Taro Nakamura and Hisashi Osumi</i>
12.20 – 12.40	100	709	A1.6 - Development of a quadruped robot model in simmechanics <i>Manuel Silva, Ramiro Barbosa and Tomás Castro</i>

Session – B1: Human Assist Devices

Session Chair: Abbas Dehghani

Date: Monday 15 July 2013		Time: 10.40 – 12.40		Venue: Jones Room	
Time	Paper ID	Proc. Page	Presentation		
10.40 – 11.00	74	93	B1.1 - Variable impedance control of a parallel robot for ankle rehabilitation <i>Sheng Quan Xie and Yun Ho Tsoi</i>		
11.00 – 11.20	24	35	B1.2 - Development of a lower extremity exoskeleton system for walking assistance while load carrying <i>Wan soo Kim, Hee don Lee, Dong hwan Lim, Jung soo Han and Chang soo Han</i>		
11.20 – 11.40	90	109	B1.3 - A simple load estimation of a patient during a standing assistance motion <i>Takahiro Yamada, Daisuke Chugo, Shoyo Yokota and Hiroshi Hashimoto</i>		
11.40 – 12.00	52	59	B1.4 - Actuator with adjustable-rigidity and embedded sensor for an active orthosis knee joint <i>Manuel Cestari, Daniel Sanz-Merodio, Juan Carlos Arevalo, Xavier Carrillo and Elena Garcia</i>		
12.00 – 12.20	69	153	B1.5 - A comparison of a passive and variable-damping controlled leg prosthesis in a simulated environment <i>Jie Zhao, Karsten Berns, Roberto Baptista and Antonio Bo</i>		
12.20 – 12.40	42	43	B1.6 - Dynamic coupling characteristics of a semi-active knee prosthesis <i>Mohammed Awad, Abbass Dehgahni, David Moser and Saeed Zahedi</i>		

Session – C1: Climbing Robots

Session Chair: John Billingsley

Date: Monday 15 July 2013		Time: 10.40 – 12.20		Venue: Broadway Room	
Time	Paper ID	Proc. Page	Presentation		

10.40 – 11.00	43	343	C1.1 - Climbing robot equipped with a postural adjustment mechanism for conical poles <i>Yasuhiko Ishigure, Haruhisa Kawasaki, Taichi Kato, Katuyuki Hirai, Nobuyuki Iinuma and Satoshi Ueki</i>
11.00 – 11.20	9	309	C1.2 - Examination of surface feature analysis and terrain traversability for a wall-climbing robot <i>Daniel Schmidt, Marcel Jung and Karsten Berns</i>
11.20 – 11.40	59	701	C1.3 - Finite element modelling of the adhesion system of a vortex based climbing robot <i>Filippo Bonaccorso, Salvatore D'Urso, Domenico Longo and Giovanni Muscato</i>
11.40 – 12.00	105	375	C1.4 - Optimal design of a magnetic adhesion system for climbing robots <i>Peter Ward, Dikai Liu, Ken Waldron and Mahdi Hassan</i>
12.00 – 12.20	51	578	C1.5 - Studies of total adhesive force of multiple magnetic wheels for a climbing robot <i>Arsit Boonyaprapasorn, Kaned Thung-Od, Rardchawadee Silapunt and Thavida Maneewarn</i>

12.40 – 14.00	Lunch Break	Venue: Aerial Function Centre
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Session – G1: Plenary Lectures Session Chair: Gurvinder S. Virk			
Date: Monday 15 July 2013		Time: 14.00 – 15.20	Venue: Harris, Jones, Broadway Rooms
Time	Paper ID	Proc. Page	Presentation
14.00 – 14.20	10	807	G1.1 - Human motion capture, localization and interaction based on wearable inertial and contact sensors <i>Qilong Yuan and I-Ming Chen</i>
14.20 – 14.40	89	833	G1.2 - Challenges of the changing robot markets <i>Gurvinder Singh Virk, Carol Herman, Roger Bostelman and Tamas Haidegger</i>
14.40 – 15.00	115	841	E3.4 - OFEX 2.0: Database for performance evaluation of object feature extraction algorithms <i>Ki-Yeop Sung and Seungbin Moon</i>
15.00 – 15.20	05	849	G1.3 - Ethical assessment of robots <i>M. Osman Tokhi</i>

15.20 – 15.40	Tea Break	Venue: Lobby
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Session – D1: Locomotion Control			
Session Chair: Dikai Liu			
Date: Monday 15 July 2013		Time: 15.40 – 17.40	Venue: Harris Room
Time	Paper ID	Proc. Page	Presentation
15.40 – 16.00	63	495	D1.1 - A behavior-based library for locomotion control of kinematically complex robots <i>Malte Langosz, Lorenz Quack, Alexander Dettmann, Sebastian Bartsch and Frank Kirchner</i>
16.00 – 16.20	112	667	D1.2 - A novel hybrid spiral-dynamics random-chemotaxis optimization algorithm with application to modelling of a flexible robot manipulator <i>Ahmad Nor Kasruddin Nasir and M. Osman Tokhi</i>
16.20 – 16.40	66	281	D1.3 - A simplified variable admittance controller based on a virtual agonist-antagonist mechanism for robot joint control <i>Xiaofeng Xiong, Florentin Wörgötter and Poramate Manoonpong</i>
16.40 – 17.00	56	189	D1.4 - BFA optimisation of control parameters of a new structure two wheeled robot on inclined surface <i>Saad Agouri, M. Osman Tokhi, Abdulla Almeshal and Khaled Goher</i>
17.00 – 17.20	86	651	D1.5 - Force sensing and control during movement and object manipulation in MERO walking robots <i>Ion Ion, Curaj Adrian, Vasile Aurelian, Dumitru Iulia and Stamatescu Grigore</i>
17.20 – 17.40	41	729	D1.6 - Velocity control of serial elastic actuator based on EKF estimator and neural network <i>Yichao Mao, Rong Xiong, Qiuguo Zhu and Jian Chu</i>

Session – E1: Bipedal Robots			
Session Chair: Surya P. N. Singh			
Date: Monday 15 July 2013		Time: 15.40 – 17.20	Venue: Jones Room
Time	Paper ID	Proc. Page	Presentation
15.40 – 16.00	81	529	E1.1 - A hip joint structure for biped robot with reduced DOF's of motion <i>Satoshi Ito, Akihiro Nakazawa, Takeshi Onozawa, Shingo Nishio and Minoru Sasaki</i>
16.00 – 16.20	37	463	E1.2 - An actuated continuous spring loaded inverted pendulum (slip) model for the analysis of bouncing gaits <i>Daniel Jacobs, Linus Park and Kenneth Waldron</i>
16.20 – 16.40	32	383	E1.3 - Compliance foot system design for bipedal robot walking over uneven terrain <i>Ning Wu, Boon-Hwa Tan and Chee-Meng Chew</i>

16.40 – 17.00	57	822	E1.4 - Estimation of the trunk attitude of a humanoid by data fusion of inertial sensors and joint encoders <i>Siddhartha Khandelwal and Christine Chevallereau</i>
17.00 – 17.20	93	537	E1.5 - Exploring the Lombard paradoxon in a bipedal musculoskeletal robot <i>Katayon Radkhah and Oskar von Stryk</i>

Session – F1: Actuation

Session Chair: Abul Azad

Date: Monday 15 July 2013

Time: 15.40 – 17.20

Venue: Broadway Room

Time	Paper ID	Proc. Page	Presentation
15.40 – 16.00	47	257	F1.1 - A resilient robotic actuator based on an integrated sensorized elastomer coupling <i>Jan Paskarheit, Salvatore Annunziata and Axel Schneider</i>
16.00 – 16.20	46	249	F1.2 - Bio-inspired elbow impedance modulation using a compliant technical joint drive <i>Salvatore Annunziata, Jan Paskarheit and Axel Schneider</i>
16.20 – 16.40	39	693	F1.3 - Design of SMA based actuators used in robotics <i>Muhammet Ozturk and Basaran Bahadir Kocer</i>
16.40 – 17.00	15	327	F1.4 - Development of worm-rack driven cylindrical crawler unit <i>Jun-ya Nagase, Koichi Suzumori and Norihiko Saga</i>
17.00 – 17.20	54	273	F1.5 - Improvement of energy consumption by movement of center of rotation of joint <i>Kazutoshi Tanaka, Satoshi Nishikawa and Yasuo Kuniyoshi</i>

17.20 – 18.20

**CLAWAR Association
Annual General Meeting**

Venue: Harris, Jones, Broadway Rooms

Tuesday, July 16th

Keynote Address – 2 Session Chair: Giovanni Muscato			
Date: Tuesday 16 July 2013			Venue: Harris, Jones, Broadway Rooms
Time	Paper ID	Proc. Page	Presentation
09.20 – 10.20	1	3	TIRAMISU : FP7-Project for an integrated toolbox in Humanitarian Demining, focus on UGV, UAV, technical survey and close-in-detection <i>Yvan Baudoin</i>

10.20 – 10.40	Coffee Break	Venue: Lobby
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Session – A2: Multi-legged Robots Session Chair: Piotr Skrzypczyński			
Date: Tuesday 16 July 2013		Time: 10.40 – 12.40	Venue: Harris Room
Time	Paper ID	Proc. Page	Presentation
10.40 – 11.00	6	163	A2.1 - DODEKAPOD as universal intelligent structure for adaptive parallel spatial self-moving modular robots <i>Sergey Sayapin, Anatoly Karpenko and Hiep Dang Xuan</i>
11.00 – 11.20	95	789	A2.2 - Efficiently using RGB-D data to self-localize a small walking robot in man-made environments <i>Piotr Skrzypczyński</i>
11.20 – 11.40	98	555	A2.3 - Inverse dynamics for a quadruped robot locomoting along slippery surfaces <i>Samuel Zapolsky, Evan Drumwright, Ioannis Havoutis, Jonas Buchli and Claudio Semini</i>
11.40 – 12.00	29	451	A2.4 - Event driven ground-impedance identification for legged robots <i>Juan Carlos Arevalo, Manuel Cestari, Daniel Sanz-Merodio and Elena Garcia</i>
12.00 – 12.20	106	399	A2.5 - HEX-PIDERIX: A six-legged walking climbing robot to perform inspection tasks on vertical surfaces <i>Xochitl Yamile Sandoval-Castro, Mario A. Garcia-Murillo, Jonny Paul Zabala-DePaz and Eduardo Castillo-Castaneda</i>
12.20 – 12.40	72	503	A2.6 - Effects of neck swing motion on the body posture of a four-legged robot <i>Koji Shibuya and Kenji Matsuhira</i>

Session – B2: Human Assist Devices Session Chair: Abbas Dehghani
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Date: Tuesday 16 July 2013		Time: 10.40 – 12.40		Venue: Jones Room	
Time	Paper ID	Proc. Page	Presentation		
10.40 – 11.00	33	223	B2.1 - Implementation of an adjustable compliant knee joint in a lower-limb exoskeleton <i>Daniel Sanz-Merodio, Manuel Cestari, Juan Carlos Arevalo and Elena Garcia</i>		
11.00 – 11.20	20	19	B2.2 - The designing of the exoskeleton leg with pneumatic drives <i>Artyom Sukhanov, Valery Gradetsky, Maxim Knyazkov, Eugeny Semyonov and Ivan Ermolov</i>		
11.20 – 11.40	21	27	B2.3 - Motion control algorithms for the exoskeleton equipped with pneumatic drives <i>Anastasiya Kryukova, Valery Gradetsky, Maxim Knyazkov, Evgeny Semyonov, Ivan Ermolov and Artyom Sukhanov</i>		
11.40 – 12.00	75	68	B2.4 - A personal robot integrating a physically-based human motion tracking and analysis <i>Consuelo Granata, Philippe Bidaud, Ragou Ady and Joseph Salini</i>		
12.00 – 12.20	91	232	B2.5 - New propulsion system with pneumatic artificial muscles <i>Ivanka Veneva</i>		
12.20 – 12.40	92	117	B2.6 - Exoskeletons for assisting human walking <i>Gurvinder Singh Virk and Indrawibawa Nyoman</i>		

Session – C2: Field Robots					
Session Chair: Gabriel.Aguirre-Ollinger					
Date: Monday 16 July 2013		Time: 10.40 – 12.20		Venue: Broadway Room	
Time	Paper ID	Proc. Page	Presentation		
10.40 – 11.00	26	85	C2.1 - Transition analysis of a biped pole-climbing robot -- CLIMBOT <i>Haifei Zhu, Yisheng Guan, Wenqiang Wu, Xuefeng Zhou and Hong Zhang</i>		
11.00 – 11.20	34	241	C2.2 - Development of a wall climbing robot using the mobile mechanism of traveling waves propagation <i>Yutaka Mizota, Kazutoshi Takahashi, Yusuke Goto and Taro Nakamura</i>		
11.20 – 11.40	45	392	C2.3 - New design of peristaltic crawling robot with an earthworm muscular structure <i>Hikaru Nozari, Satoshi Tesen, Norihiko Saga, Jun-Ya Nagase and Hiroki Dobashi</i>		
11.40 – 12.00	97	547	C2.4 - An automated system for systematic testing of locomotion on heterogeneous granular media <i>Feifei Qian, Kevin Daffon, Tingnan Zhang and Daniel Goldman</i>		

12.00 – 12.20	22	171	C2.5 - Aquatic multi-robot system for lake cleaning <i>Pranay Agrawal and Bishakh Bhattacharya</i>
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12.40 – 14.00	Lunch Break		Venue: Aerial Function Centre
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Keynote Address – 3 Session Chair: Manuel Armanda			
Date: Tuesday 16 July 2013		Venue: Harris, Jones, Broadway Rooms	
Time	Paper ID	Proc. Page	Presentation
14.00 – 15.00	3	7	Muscle coordination of human locomotion <i>Marcus Pandy</i>

15.00 – 15.20	CLAWAR Association Report, CLAWAR 2014 & 2015		Venue: Harris, Jones, Broadway Rooms
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15.20 – 15.40	Tea Break		Venue: Lobby
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Session – D2: Locomotion Control Session Chair: Seungbin Moon			
Date: Tuesday 16 July 2013		Time: 15.40 – 17.40	Venue: Harris Room
Time	Paper ID	Proc. Page	Presentation
15.40 – 16.00	49	740	D2.1 - Low-dimensional user control of autonomously planned whole-body humanoid locomotion motion towards motor-imagery BCI application <i>Karim Bouyarmane, Joris Vaillant and Jun Morimoto</i>
16.00 – 16.20	35	719	D2.2 - Model-based elastic tendon control for electrically actuated musculoskeletal bipedal robots <i>Katayon Radkhah and Oskar von Stryk</i>
16.20 – 16.40	40	625	D2.3 - Neural control of a three-legged reconfigurable robot with omnidirectional wheels <i>Poramate Manoonpong, Florentin Wörgötter and Pudit Laksanacharoen</i>
16.40 – 17.00	64	659	D2.4 - Object grasping with dual flexible manipulator using genetic algorithms <i>Mohd Abdul Hadi Hassan and M. Osman Tokhi</i>
17.00 – 17.20	77	519	D2.5 - Previewed impedance adaptation to coordinate upper-limb trajectory tracking and postural balance in disturbed conditions <i>Aurelien Ibanez, Philippe Bidaud and Vincent Padois</i>

17.20 – 17.40	55	179	D2.6 Hybrid spiral dynamic bacterial chemotaxis optimisation for hybrid fuzzy logic control of a novel two wheeled robotic vehicle <i>Abdullah Almeshal, Khaled Goher, M. Osman Tokhi and Ahmad N. K. Nasir</i>
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Session – E2: Bipedal Locomotion			
Session Chair: Giovanni Muscato			
Date: Tuesday 16 July 2013		Time: 15.40 – 17.40	Venue: Jones Room
Time	Paper ID	Proc. Page	Presentation
15.40 – 16.00	104	125	E2.1 - Hopping machine: A tool for human running simulation and for legged robots and exoskeleton design <i>André H. Maia, Sérgio Laquini Jr, Antônio Bento Filho, Victor Hugo Brito Fernandes and Elena Garcia</i>
16.00 – 16.20	76	101	E2.2 - A mobile 3d vision-based embedded system for robust estimation and analysis of human locomotion <i>Cong Zong, Philippe Bidaud and Xavier Clady</i>
16.20 – 16.40	14	571	E2.3 - Shuffle turn of humanoid robot simulation based on EMG measurement <i>Masanao Koeda, Takayuki Serizawa and Yuta Matsui</i>
16.40 – 17.00	60	487	E2.4 - Walking despite the passive compliance: Techniques for using conventional pattern generators to control intrinsically compliant humanoid robots <i>Przemyslaw Kryczka, Petar Kormushev, Kenji Hashimoto, Hun-ok Lim, Nikolaos Tsagarakis, Darwin Caldwell and Atsuo Takanishi</i>
17.00 – 17.20	8	411	E2.5 - Reinforcement learning of bipedal lateral behaviour and stability control with ankle-roll activation <i>Bernhard Hengst</i>
17.20 – 17.40	11	419	E2.6 - Obstacle/gap detection and terrain classification of walking robots based on a 2D laser range finder <i>Patrick Kesper, Eduard Grinke, Frank Hesse, Florentin Wörgötter and Poramate Manoonpong</i>

Session – F2: Configuration			
Session Chair: Daisuke Chugo			
Date: Tuesday 16 July 2013		Time: 15.40 – 18.00	Venue: Broadway Room
Time	Paper ID	Proc. Page	Presentation
15.40 – 16.00	7	141	F2.1 - Integrated design, modelling and analysis of two-wheeled wheelchair for disabled <i>Abqori Aula, Tareq M. Altalmas, Salmiah Ahmad, Rini Akmeliawati, Shahrul Naim Sidek and M. Osman Tokhi</i>

16.00 – 16.20	67	585	F2.2 - Quantitative kinematic performance comparison of reconfigurable leg-wheeled vehicles <i>Aliakbar Alamdari, Robin Herin and Venkat Krovi</i>
16.20 – 16.40	107	749	F2.3 - State to state motion planning for underactuated systems using a modified rapidly exploring random tree algorithm <i>Rina Shvartsman, Ying Tan and Denny Oetomo</i>
16.40 – 17.00	108	633	F2.4 - The passive dynamics of walking and brachiating robots: Results on the topology and stability of passive gaits <i>Nelson Rosa Jr. and K. M. Lynch</i>
17.00 – 17.20	88	359	F2.5 - Layered body for flexible mono-tread mobile track <i>Takafumi Haji, Shinichi Araki, Tetsuya Kinugasa, Koji Yoshida, Hisanori Amano, Ryota Hayashi, Kenichi Tokuda and Masatsugu Iribe</i>
17.20 – 17.40	28	643	F2.6 - Modeling and analysis of robotic grasping using soft fingertips <i>Akhtar Khurshid, Abdul Ghafoor, M Afzaal Malik and Yasar Ayaz</i>
17.40 – 18.00	23	677	F2.6 - Modelling of movement of the three-link robot with operated friction forces on the horizontal surface <i>Sergey Jatsun, Lyudmila Volkova, Grigoriy Naumov and Andrey Yatsun</i>

19.30 – 22.00 (Boarding 19.15)	Banquet	Venue: Matilda III, Pier 26, Cockle Bay
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Wednesday, July 17th

Keynote Address – 4 Session Chair: Philippe Bidaud			
Date: Wednesday 17 July 2013		Venue: Harris, Jones, Broadway Rooms	
Time	Paper ID	Proc. Page	Presentation
09.20 – 10.20	2	6	Anthropomorphic biological equipment <i>Yoshihiko Nakamura</i>

10.20 – 10.40	Coffee Break	Venue: Lobby
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Session – A3: Walking Robots Session Chair: Piotr Skrzypczynski			
Date: Wednesday 17 July 2013		Time: 10.40 – 12.40	Venue: Harris Room
Time	Paper ID	Proc. Page	Presentation
10.40 – 11.00	27	443	A3.1 - Local reflex generation for obstacle negotiation in quadrupedal locomotion <i>Michele Focchi, Victor Barasuol, Ioannis Havoutis, Jonas Buchli, Claudio Semini and Darwin G. Caldwell</i>
11.00 – 11.20	78	773	A3.2 - Method for estimating location and yaw angle of a six-legged robot for omni-directional walking control <i>Hiroaki Uchida, Kouhei Takahashi and Masaya Suzuki</i>
11.20 – 11.40	12	427	A3.3 - Motion control for the 6-legged robot in extreme conditions <i>Yury Golubev, Victor Korianov, Vladimir Pavlovsky and Alexey Panchenko</i>
11.40 – 12.00	94	797	A3.4 - Recognition of 3D objects for walking robot equipped with multisense-SL sensor head <i>Janusz Bedkowski, Karol Majek, Andrzej Masłowski and Piotr Kaczmarek</i>
12.00 – 12.20	31	459	A3.5 - The turtle, a legged submerged inspection vehicle <i>John Billingsley</i>
12.20 – 12.40	38	335	A3.6 - Unconventional five-legged robot for agile locomotion <i>Marek Wasik, Mikolaj Wasielica and Piotr Skrzypczynski</i>

Session – B3: Human Interactive Devices Session Chair: Daniel Schmidt		
Date: Wednesday 17 July 2013	Time: 10.40 – 12.40	Venue: Jones Room

Time	Paper ID	Proc. Page	Presentation
10.40 – 11.00	102	291	B3.1 - Determination of trajectories using non-invasive BCI techniques in 3D environments <i>T. Garcia-Egea, C. A. Díaz-Hernández, J. Lopez-Coronado and J. L. Contreras-Vidal</i>
11.00 – 11.20	65	85	B3.2 - Dynamics of human lower limbs using CGA data and BSIP predictive equations <i>Antônio Bento Filho, Victor Hugo Brito Fernandes, André Hemerly Maia, Elena Garcia, Anselmo Frizera and Teodiano Bastos</i>
11.20 – 11.40	99	563	B3.3 - LAURON V: Optimized leg configuration for the design of a bio-inspired walking robot <i>Arne Roennau, Georg Heppner, Lars Pfozter and Ruediger Dillmann</i>
11.40 – 12.00	16	11	B3.4 - Optimization-based gait planning for wearable power-assist locomotor by specifying via-points <i>Chang Hyun Sung, Takahiro Kagawa, Yoji Uno</i>
12.00 – 12.20	68	593	B3.5 - Enhancing personal electric vehicles using reconfigurable design <i>Robin S. Hérin, Aliakbar Alamdari and Venkat N. Krovi</i>
12.20 – 12.40	79	599	B3.6 - Hand-manoeuvred wheelchair using wheels fitted with feet for enhanced mobility <i>T. Okada, H. Wada, N. Mimura, T. Shimizu and K. Nagata</i>

Session – C3: Field Robots			
Session Chair: Seungbin Moon			
Date: Wednesday 17 July 2013		Time: 10.40 – 12.40	Venue: Broadway Room
Time	Paper ID	Proc. Page	Presentation
10.40 – 11.00	87	617	C3.1 - Compliance contact control of mecanum wheeled mobile robot for improving safety <i>Naotaka Nishigami, Naoyuki Takesue, Rikiya Makino, Kouhei Kikuchi, Kousyun Fujiwara and Hideo Fujimoto</i>
11.00 – 11.20	13	199	C3.2 - Compliant backbone structures in mobile robots <i>Nicole Kern, Richard Bachmann, Ryan Michols, Ronald Triolo and Roger Quinn</i>
11.20 – 11.40	48	265	C3.3 - Derivation of mathematical models of the peristaltic crawling robot for maintenance of a mixing tank <i>Yosuke Morishita, Daisuke Sannohe, Tatsuya Osawa, Tomoya Tanaka and Taro Nakamura</i>
11.40 – 12.00	17	301	C3.4 - Development of a peristaltic crawling inspection robot with pneumatic artificial muscles for a 25A elbow pipe <i>Tatsuya Kishi, Taro Nakamura and Megumi Ikeuchi</i>
12.00 – 12.20	18	207	C3.5 - Development of two types of maintenance robots for a jacket inside a mixing tank <i>Tomoya Tanaka, Taro Nakamura, Daisuke Sannohe, Yosuke</i>

			<i>Morisita and Mitsugu Tanaka</i>
12.20 – 12.40	96	367	C3.6 Surface adaptation robot for defect detection by performing continuously an ultrasound wheel probe <i>Hernando Leon-Rodriguez</i>

14.40 – 14.00	Lunch Break	Venue: Aerial Function Centre
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Session – D3: Sensing and Location			
Session Chair: Lars Pfozter			
Date: Wednesday 17 July 2013		Time: 14.00 – 15.00	Venue: Harris Room
Time	Paper ID	Proc. Page	Presentation
14.00 – 14.20	84	781	D3.1 - Cooperative multi-robot localization with radio-based sensors <i>Lars Pfozter, Soeren Bohn, Jan Oberlaender, Georg Heppner, Arne Roennau and Ruediger Dillmann</i>
14.20 – 14.40	44	51	D3.2 - Covered area detection based on brightness change of inner camera images for crawler robot <i>Kenichi Tokuda, Tatsuya Hirayama, Tetsuya Kinugasa, Takafumi Haji and Hisanori Amano</i>
14.40 – 15.00	113	317	D3.3 development of humanoid robot teaching system based on a RGB-D sensor <i>Chuntao Leng, Qixin Cao, Bo Fang, Yang Yang and Zhen Huang</i>

Session – E3: Sensing and Feature Extraction			
Session Chair: Hernando Leon-Rodriguez			
Date: Wednesday 17 July 2013		Time: 14.00 – 15.00	Venue: Jones Room
Time	Paper ID	Proc. Page	Presentation
14.00 – 14.20	70	351	E3.1 - CAMINANTE: A platform for sensitive walking <i>Vadim Chernyak, Ennio Clarretti, Stephen Nestinger and Eduardo Torres-Jara</i>
14.20 – 14.40	36	815	E3.2 - Real-time detection of the activity of a dog <i>Germain Lemasson, Dominique Duhaut and Philippe Lucidarme</i>
14.40 – 15.00	61	77	E3.3 - Humanoid robot programming through face expressions <i>Alvaro Uribe, Hernando Leon-Rodriguez and Byron Perez</i>

Session – F3: Wheeled Systems Session Chair: Khaled M. Goher			
Date: Wednesday 17 July 2013		Time: 14.00 – 15.00	Venue: Broadway Room
Time	Paper ID	Proc. Page	Presentation
14.00 – 14.20	82	609	F3.1 - Design and locomotion modes of a small wheel-legged robot <i>Ioan Doroftei and Ion Ion</i>
14.20 – 14.40	58	479	F3.2 - Design of leaping behavior in a planar model with three compliant and rolling leg <i>Ya-Cheng Chou, Ke-Jung Huang, Wei-Shun Yu and Pei-Chun Lin</i>
14.40 – 15.00	110	133	F3.3 - Design of a reconfigurable wheelchair with a sit-to-stand facility for a disabled kid <i>K. M. Goher, S. Al-Harhi, M. Al-Rashdi, A. Al-Kindi, L. Al-Hadhrani, M. Shafiq, A. Al Yahmadi and S. Fadhallah</i>

15.00 – 15.20	Tea Break	Venue: Lobby
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15.20 – 15.40	Closure	Venue: Harris, Jones, Broadway Rooms
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15.40 –	Laboratory Tour Centre for Autonomous Systems, University of Technology, Sydney Australian Centre for Field Robotics, University of Sydney	
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CLAWAR 2013 Programme Summary

Sunday 14 July 2013	
13.00-18.00	Registration open (ACC)
18.00-20.00	Welcome Reception (ACC)

Monday 15 July 2013			
Time	Programme session		
09.00-09.20	Opening (ACC)		
09.20-10.20	Keynote-1: Homayoon Kazerooni (HJBR)		
10.20-10.40	Coffee (Lobby)		
10.40-12.40	Session A1 (Harris)	Session B1 (Jones)	Session C1 (Broadway)
	73	74	43
10.40-11.00	25	24	9
11.00-11.20	30	90	59
11.20-11.40	53	52	105
11.40-12.00	19	69	51
12.00-12.20	100	42	
12.20-12.40	Lunch (AFC)		
12.40-14.00	Plenary lectures (G) (HJBR)		
14.00-14.20	10 - Qilong Yuan and I-Ming Chen		
14.20-14.40	89 - Gurvinder S Virk, Carol Herman, Roger Bostelman and Tamas Haidegger		
14.40-15.00	115 - Ki-Yeop Sung and Seungbin Moon		
15.00-15.20	05 - M. Osman Tokhi		
15.20-15.40	Tea (Lobby)		
15.40-17.40	Session D1 (Harris)	Session E1 (Jones)	Session F1 (Broadway)
	63	81	47
15.40-16.00	112	37	46
16.00-16.20	66	32	39
16.20-16.40	56	57	15
16.40-17.00	86	93	54
17.00-17.20	41		
17.20-17.40	CAAGM (HJBR)		

Tuesday 16 July 2013			
Time	Programme session		
09.20-10.20	Keynote-2: Yvan Baudoin (HJBR)		
10.20-10.40	Coffee (Lobby)		
10.40-12.40	Session A2 (Harris)	Session B2 (Jones)	Session C2 (Broadway)
	6	33	26
10.40-11.00	95	20	34
11.00-11.20	98	21	45
11.20-11.40	29	75	97
11.40-12.00	106	91	22
12.00-12.20	72	92	
12.20-12.40	Lunch (AFC)		
12.40-14.00	Keynote-3: Marcus Pandy (HJBR)		
14.00-15.00	CA Report & CLAWAR2014/15 (HJBR)		
15.00-15.20	Tea (Lobby)		
15.20-15.40	Session D2 (Harris)	Session E2 (Jones)	Session F2 (Broadway)
15.40-18.00	49	104	7
15.40-16.00	35	76	67
16.00-16.20	40	14	107
16.20-16.40	64	60	108
16.40-17.00	77	8	88
17.00-17.20	55	11	28
17.20-17.40			23
17.40-18.00	Banquet (M-III)		
19.30 - 22.00			

Key:

ACC: Aerial Conference Centre lobby

AFC: Aerial function Centre

M-III: Matilda III, Pier 26, Cockle Bay

HJBR: Harris, Jones, Broadway Rooms

Wednesday 17 July 2013			
Time	Programme session		
09.20-10.20	Keynote-4: Yohihiko Nakamura (HJBR)		
10.20-10.40	Coffee (Lobby)		
10.40-12.40	Session A3 (Harris)	Session B3 (Jones)	Session C3 (Broadway)
	27	102	87
10.40-11.00	78	65	13
11.00-11.20	12	99	48
11.20-11.40	94	16	17
11.40-12.00	31	68	18
12.00-12.20	38	79	96
12.20-12.40	Lunch (AFC)		
12.40-14.00	Session D3 (Harris)	Session E3 (Jones)	Session F3 (Broadway)
14.00-15.00	84	70	82
14.00-14.20	44	36	58
14.20-14.40	113	61	110
14.40-15.00	Tea (Lobby)		
15.00-15.20	Closure (HJBR)		
15.20-15.40	Laboratory Tour Centre for Autonomous Systems, University of Technology, Sydney Australian Centre for Field Robotics, University of Sydney		

Note:

Numbers in the presentation slots are ID#s of papers