IAARC NEWSLETTER

International Association for Automation and Robotics in Construction

Newsletter 2013

Moon-Young Cho
IAARC President

In this issue:

A Word from the IAARC President

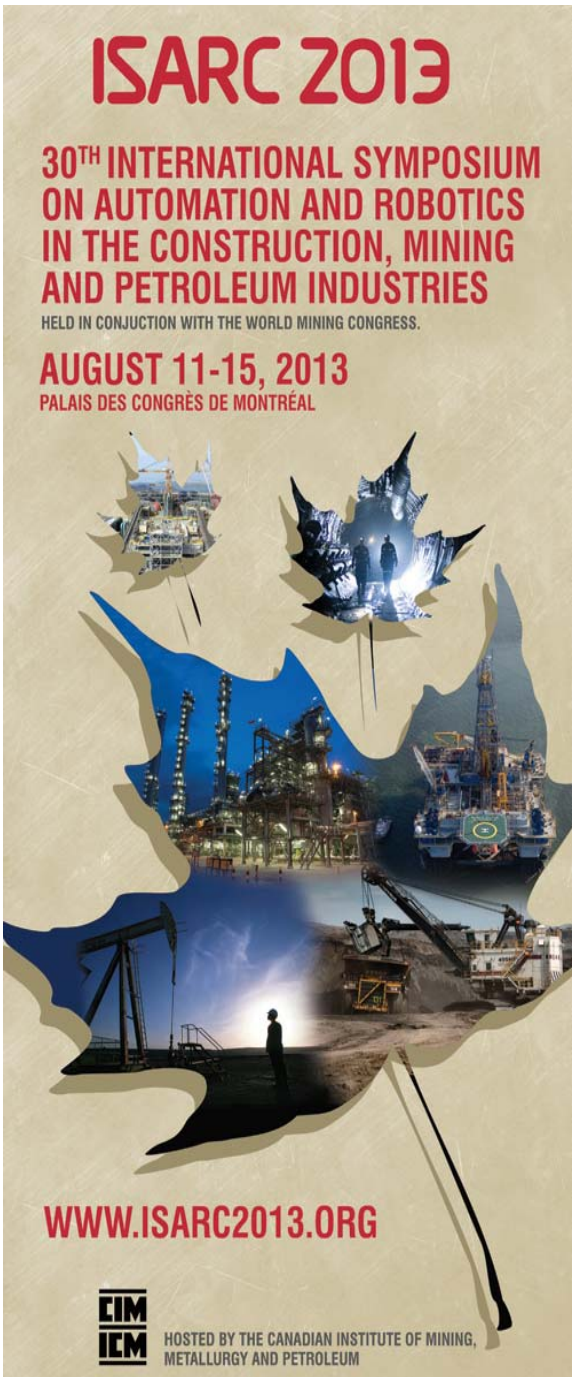
Dear IAARC Members, Friends, and Colleagues,

The 2012 ISARC in Eindhoven, the Netherlands, has been a success. You can read more about it in this newsletter.

I would like to invite you to register for the 30th International Symposium on Automation and Robotics in Construction (ISARC). The 30th ISARC will be held at Montreal, Canada. It will be a novel ISARC since we expect some great contributions in topics such as mining and petroleum as well. For more information, please visit the ISARC website at:

http://www.isarc2013.org.

Dr. Moon-Young Cho
President of IAARC



It's time to register for the ISARC 2013 in Montreal, Canada!

The 30th International Symposium on Automation and Robotics in Construction and Mining (ISARC 2013) will be held from August 11 to 15, 2013 in Montréal, Canada.

The ISARC was initiated in 1984 by a group who later founded the International Association for Automation and Robotics in Construction (IAARC) to address the needs and concerns of a global community in all fields of construction; including civil and building engineering, machine automation, robotics applications to construction, information technology innovations, planning, logistics, etc. The ISARC has been hosted in many countries and produced diverse refereed papers that have been published in proceedings worldwide.

The 30th ISARC will be unique as it will also include parallel and joint sessions in Automation and Robotics in the Mining industry and will be held for the first time in conjunction with the 23th World Mining Congress (WMC). Two industries under one roof! Both conferences will sponsor a joint trade show - a unique market for domestic and international vendors to tap into hundreds of worldwide buyers in one location.

More than 250 delegates are expected at ISARC with over 200 papers presented. More than 900 are expected at the WMC, and over 200 suppliers to both the construction and mining industries, will gather to foster new ideas, identify solid research and business opportunities as well as showcase the latest in equipment and technology.

As such, this joint event will not only host a prestigious gathering of researchers, academics, and industry practitioners in all specialty areas related to the construction industry, but it will also include the participation of renowned experts – from academia and industry.

We look forward to seeing you in Montréal!

Please visit our website at
http://www.isarc2013.org

ISARC 2012 Highlights

Dear IAARC BOD members,

I hope you had a safe journey back home!

On behalf of Ger Maas, I would like to express our utmost appreciation for your attendance at the 29th International Symposium on Automation and Robotics in Construction and the 8th World Conference of the International Society for Gerontechnology. Most of all, ISG*ISARC2012 was successful due to your contribution and active participation.

368 participants from 32 countries gathered around keynotes, in a number of posters discussions, symposiums, robot demonstrations and social events. The ISG*ISARC2012 organizing committee hopes you to have gained enriching experience by participating actively in sessions of the oral presentations and poster discussions and by exchanging up-to-date knowledge with other participants.

With best regards,

Frans van Gassel MSc
Assistant Professor TU/e, Delegated Manager UCB

ISG*ISARC2012 TU/e Technische Universiteit Eindhoven University of Technology

Summary ISG*ISARC2012

The combined forces of ISG (International Society of Gerontechnology) and the ISARC organization (International Symposium on Automation and Robotics in Construction) resulted in a successful world conference with 362 presentations and an attendance of 368 delegates from 32 different countries. The acceptance percentage of presentations amounted to 86%. 110 presentations published a full paper in a peer-review process. As many as 106 peer reviewers assisted the organizers. By January 21, 2013, more than 32,000 conference website visits had been counted.

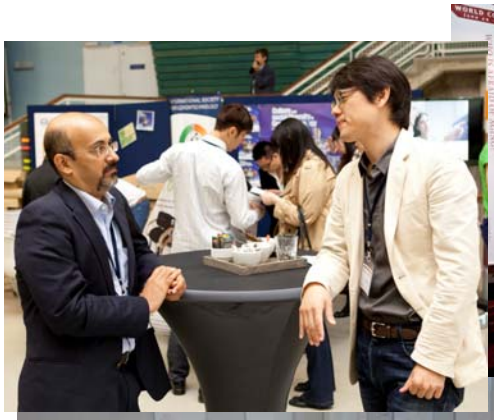
Special events icluded a Gerontechnology ART exhibition by Jacqueline Hillen (France), the Tucker- Hasegawa awards for excellence in Robotics and Automation in Construction bestowed upon Pär Åhman (Sweden) and Koshy Varghese (India), and the ISG Grandmaster title that was presented to Herman Bouma (The Netherlands) during the presidential symposium. Two best poster awards, four best paper awards and three best Sweet Dining Design awards were earned by the delegates. An ISG Master class for young researchers and designers preceded the conference.

Productive Exchange at ISG*ISARC2012

For the first time the bi-annual international conference of the ISG has been combined with another technical discipline: automation and robotics in construction. Exchanges between the two domains appeared especially lively and fruitful during moderated poster-and-prototype events that took place at prime time in between coffee break and lunch time. Engineers, gerontologists and physicians of all sorts discovered their common grounds and taught each other. A clear similarity existed, technically speaking, between a robot handing over a cup of tea at home without spilling, and a robot placing a window frame correctly on a construction site. And how small is the difference between monitoring the whereabouts of floating objects in a sewer tube, and of persons in a room? Conference tracks, such as 'Information technology', 'Robotics', 'Work – Leisure – Volunteering', 'Housing – Building – Daily living' and 'Communication – Management – Governance' contained several contributions from both ISARC and ISG delegates. In contrast, the tracks 'Automation' and 'Application systems – Realities' were mostly devoted to the construction industry, while 'Health – Comfort – Self-esteem' and 'Mobility – Transport – Travel' had a strong gerontechnology taste.

The plenary keynotes were attended by delegates from both domains and showed clearly future trends and societal concerns. Symposia became micro worlds in which viewpoints from different domains came along, presenters and participants formulated new scientific challenges together, with researchers and students broadening their understanding. Free communications came in 9 to 11 simultaneous sessions and were usually attended by a smaller but strongly interested audience. For the future, we recommend more combinations of conferences that are technically speaking much related, but culturally far apart. It will foster out-of-the box thinking in science as well as the creativity needed to solve current societal problems such as the adaptation to demographic, cultural and climatic change.

Photos from ISARC 2012



Updates and News to IAARC Organization

Transfer of IAARC Secretary

The task of IAARC Secretary has been very successfully associated for many years with the University.

On Monday, February 11, 2013 Frans van Gassel transferred the IAARC Secretary documents to Professor Jozef Gasparik in Bratislava at the Slovak University of Technology in Bratislava.

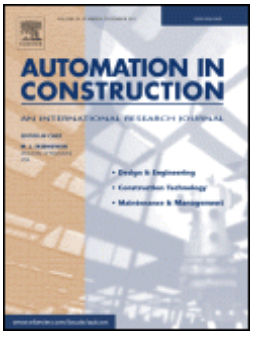
We wish Jozef a lot of dedication and success with his new task as Secretary General of IAARC.

Frans van Gassel

Jozef Gasparik

Contribute to this newsletter: Read your article here!

It's free and does not take much time. Please submit your contribution to the next IAARC Newsletter to Dr. Jochen Teizer, Editor of the ISARC Newsletter, E-Mail: teizer@gatech.edu.



Submit your research articles to peer-reviewed academic journals !

Tucker-Hasegawa Awards 2011 and 2012 Awarded to Pär Åhman and Koshy Varghese

The award committee decided to give two awards: one for 2011 and one for 2012.

For 2011 Pär Åhman was seleced as he has been a great supporter for IAARC for more than 20 years. One of his contributions was investing in the IAARC website and keeping it up to date.

The 2012 Tucker-Hasegawa Award was awarded to Prof. Koshy Varghese. He has been an excellent researcher and has been leading many IAARC efforts for years. He most recent contribution was indexing and digitizing of all the ISARC proceedings for all years since 1984. Prof. Varghese also held an outstanding ISARC in 2007, which many still remember!

The Award Committee exists of Carl Haas, Hyoungkwan Kim and Carlos Balanguer. IAARC received several nominations and all of them were outstanding. It was a difficult choice for the selection committee. A voting took place at the 2012 ISARC during the BOD meeting. All BOD members decided to agree with the nominations. A warm applause followed. The awards were presented during the Thursday evening banquet of ISARC 2012.

ISARC 2014 will be in Australia

Prof. Quang Ha gave a short presentation during the ISARC 2012 conference. ISARC 2014 will be organized from 2nd to the 4th of July at the University of Sidney (UTS). The themes of 2014 ISARC will be architecture, new technology, and mining industry will be integrated. Two large sponsors have been found already that will support ISRC 2014.

Other IAARC News

- Prof. Skibniewski invited the organizers of ISARC 2012 to be the editors for a special issue of Automation in Construction.
- The Board of Directors (BOD) welcomes Alessandro Carbonari as a new member.
- IAARC welcomes a new Chinese corporate member: CCICO Technologies Co Ltd.
- The Polish Industrial Research Institute for Automation & Measurements intends to join IAARC.
- The IAARC membership has reached more than 300 in 2012.

1984-2013: All ISARC Proceedings Now Online!

Thanks to the efforts of Profs. Carl Haas and Koshy Varghese, the 1986 ISARC proceedings were found in a bookshop in Paris, scanned, and made available on the IAARC website. You can find access to all proceedings here: **http://www.iaarc.org/publications/search.php**

Dr. Frédéric Bosché graduated in 2008 with a Ph.D. in Civil Engineering from the University of Waterloo, Canada in 2008. The focus of his research was on the comparison of 3D laser scanning and Building Information Models (through 3D registration), with the goal of extracting accurate and timely information on construction progress. In 2008, Frédéric joined the Computer Vision group of ETH Zurich, Switzerland, where he worked for two years on multiple projects with focus on image-based 3D reconstruction for urban and Cultural Heritage modelling. These included to significant EU FP7 projects: 3D-COFORM and V-City. Since 2011, Frédéric is a Lecturer within the School of the Built Environment at Heriot-Watt University. He lecture in Construction Management and Quantity Surveying, and pursues is research in the areas of: construction imaging, construction automation, as-built BIM, ICTs for construction management including novel communication tools like Augmented Reality. Frédéric has contributed several papers to ISARC, and has joined the Board of Directors of IAARC in 2011.

Dr. Changwan Kim is the director of the Advanced Construction Technology Laboratory (ACTL). IACTL was established to apply automation to intelligent construction site management. With the advancements in remote sensor technology, we can now acquire accurate three-dimensional (3D) information from construction sites.

Effectively processing, integrating, representing, and managing this information for diverse applications are critical issues for the construction industry. Research activities at the ACTL focus on the application of advanced remote sensor technology, as well as automated heavy equipment operation, construction progress monitoring, and facility information modeling.

One of ACTL's research focuses is on the development of 3D workspace modeling method with the capacity to improve the efficiency and safety of construction equipment through a multi-sensor data fusion-based approach (Fig. 1). The system—with TOF and CCD cameras—was designed to provide representations of the terrain and obstacles in equipment workspaces. The resulting 3D graphical representations of the workspace are detailed and accurate models for an obstacle avoidance system and operators via telerobotics.

Another of ACTL's research focuses involves the development of efficient, automated methods for detecting provide realistic and interactive visual feedback to the 3D structural components from site information and for registering 3D data to 3D CAD models for progress monitoring (Fig. 2). These methods were tested against actual construction site information acquired by a stereo vision system, photogrammetry technology, and laser scanners. Based on these findings, construction progress can be measured by comparing the as-built 3D data of the structural components with the as-planned 3D CAD model of the corresponding structural components.

ACTL is pursuing the development of automated as-built 3D facility information modeling methods for buildings and plant facilities either under construction or in operation. The current method of creating an as-built 3D model of an existing facility from 3D data is laborious, time-consuming, costly, and error-prone. Our results indicated that our as-built 3D facility information modeling methods will be a solution to these problems.

For more information, please visit: http://actl.cau.ac.kr/.

Fig. 1. 3D Workspace Model via Sensor Fusion

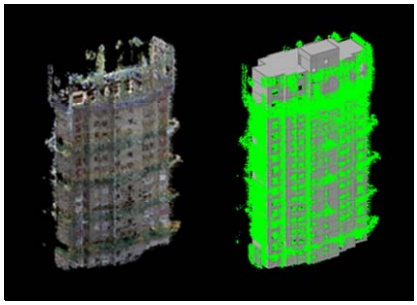


Fig. 2. Registration of 3D Data to a CAD Model

International Association for Automation and Robotics in Construction

IAARC is the only global organisation dedicated to the advancement of Automation and Robotics in Construction.

IAARC's objectives:

- To encourage, facilitate and promote the coordination of scientific and technical development in Automation and Robotics in Construction (ARC)
- To facilitate the collection, compilation, publication, exchange and dissemination of scientific ARC data and information.
- To encourage the execution of fundamental ARC studies, to advance research, laboratory investigations and field tests and to accelerate the use of ARC.
- To assist the end-user application of Automation and Robotics in the construction industry.

Meeting of the Board of Directors 2010

Through:

- Organising ISARC-events
- Participation in ISARC's
- Active membership in community committees
- Website **www.iaarc.org**
- Newsletter

Tucker-Hasegawa Award 2009 for Carl Haas

Moon-Young Cho new IAARC president

Members from:
Spain, Sweden, Japan, USA, Republic of Korea, Poland, Canada, The Netherlands, Germany, Israel, Finland, India, Taiwan, Australia, Italy, Slovenia, Lithuania, Luxembourg, Kuwait, United Kingdom, Saudi Arabia, Egypt, China, Switzerland, Ecuador, Slovakia

Bratislava Slovakia ISARC 2010

Member benefits are:

- Participation in a network of world class construction technology innovators
- Participation in a community of scholars, researchers and industrialists
- Opportunities to meet and interact with fellow members
- Exchange of state of the art knowledge and ideas
- Benchmarks for research progress and quality
- Opportunities to initiate international research projects
- Opportunities to coach young people in an international environment
- Opportunities to publish in IAARC's international journal, AUTCON (Elsevier)
- Participation in the annual meetings (ISARC conferences)
- Active membership in community committees
- Influence on IAARC's objectives and its future direction
- Web links from the IAARC site to your own web site
- Discounts for IAARC-supported activities such as ISARC conferences
- Exhibition rights at the annual ISARC conferences

Coming ISARC's

2012: The Netherlands www.isg-isarc2012.org
2013: Canada

Membership:
For 2010 the personal membership is free, except BOD members. For a membership form see website.

AUTCON is encouraged by IAARC

Publication by IAARC

Corporation members: Royal BAM Group, Swedish Construction Federation, National Institute of Standards and Technology NIST USA, Hyundai Engineering & Construction Group Korea, Hangil IT Korea

Cooperation with

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5600 MB Eindhoven – The Netherlands – Fax: +31 40 247 59 23 - Email: f.j.m.v.gassel@tue.nl
IAARC is in the Netherlands represented by www.DAARC.NL

New Courses Offered at the IAARC Academy

Beginning in October 2011, the IAARC Academy has offered new courses focusing on automation and robotics in construction and building technologies for professionals of the construction and building industry, architects, civil engineers, mechanical engineers, electrical engineers, computer scientists, managers and health professionals.

These courses may benefit if:

- You work as an onsite construction or precast concrete factory manager
- You want to modernize your construction company
- You want to develop new market niches
- You are interested in the development and application of frontier engineering and emerging technologies

What you will learn:

These courses will show you how to rationalize and modernize your construction factories, your onsite processes and adjust existing buildings to new customer needs such as caused by demographic change.

The design philosophy will show you how to design for rationalization by automation and robotics, how to design the concepts in these courses are suitable for continuous customization and, therefore, are capable of providing solutions for the rapidly changing needs in the market. You can increase your competitiveness not only by improving efficiency, but by also developing new market opportunities.

IAARC courses:

- AIR—Ambient Innovation Robotics
- iCAR—Industrialized Customization in Architecture
- L/SAR—Logistics/Site Automation & Robotics
- SSR—Service Science & Robotics
- DCD—Demographic Change Design
- ROD—Robot Oriented Design
- iP1—Integrated Project 1
- IDS—Innovation Deployment Strategies
- iP2—Integrated Project 2
- Inc—Incubator

For more information, visit the IAARC Academy website:

http://www.iaarc-academy.com

About IAARC and Contact Information

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