

# The Seventh International Conference on Intelligent Environments: A Report

*Juan Carlos Augusto, Sean Hanna, Achilles Kameas, Ahmad Lotfi*

■ *The Seventh International Conference on Intelligent Environments (IE11) was held July 25–28, 2011, at the Nottingham Trent University, Nottingham, UK. The general chairs were Ahmad Lotfi (Nottingham Trent University) and Sean Hanna (Bartlett School of Graduate Studies, University College London). Juan Carlos Augusto (University of Ulster) and Achilles Kameas (Hellenic Open University and Computer Technology Institute) served as program chairs. This article presents a report of the conference.*

Intelligent environments are populated with numerous devices and have multiple occupants, inherently exhibit increasingly intelligent behavior, support consistent functionality and human-centered operation (humans, as opposed to mere users, have increased requirements from a system, including, for example, intuitive interaction, protection of privacy, fault tolerance, and so on), and provide optimized resource usage. The development of intelligent environments is considered the first and primary step toward the realization of the ambient intelligence vision and requires input from research and contributions from several scientific and engineering disciplines, including computer science, software engineering, artificial intelligence, architecture, social sciences, and art and design. The IE conferences have been consistently created a unique blend of researchers in these disciplines, fostering cross-disciplinary discussions, debate, and collaborations.

The Seventh International Conference on Intelligent Environments (IE11) was held July 25–28 at the Nottingham Trent University in Nottingham, England. The general chairs were Ahmad Lotfi of the Nottingham Trent University, UK, and Sean Hanna of the Bartlett School of Graduate Studies, University College London, UK. Juan Carlos Augusto of the University of Ulster, UK, and Achilles Kameas of the Hellenic Open University and Computer Technology Institute, Greece, served as program chairs.

After a thorough reviewing process, 42 papers were accepted as full papers, 6 as poster papers, 13 as a doctoral colloquium, and 5 papers for the demos and videos session. The conference program lasted three days and had two parallel tracks, which in total contained 11 sessions, on topics such as ambient assisted living, adaptation, agents, user modeling and social perspectives, smart homes and smart spaces, hybrid spaces and adaptive structures, urban and sustainable environments, human computer interaction, sensor networks, and others.

In addition to the sessions, the conference program contained two doctoral colloquium sessions, a posters session, and

a demos and videos session. The increased participation in the doctoral colloquium session is an indication of the strong research potential of intelligent eEnvironments. Awards sponsored by IOS Press were presented to the best video (to *Supporting Persons with Special Needs in their Daily Life in a Smart Home* by Robert Nesselrath, Jens Hauptert, Jochen Frey, and Boris Brandherm) and the best demo (to Jochen Frey and colleagues, for the video *SmartCase: A Smart Home Environment in a Suitcase*). All papers were included in the conference proceedings, which were published in digital format by IEEE.

Seven workshops — more than ever before — were held during the conference, including the Second International Workshop on Human-Centric Interfaces for Ambient Intelligence, Artificial Intelligence Techniques for Ambient Intelligence, The Intelligent Campus, Smart Offices and Other Workplaces, the Third International Workshop on Intelligent Environments Supporting Healthcare and Well-being, Creative Science: Science Fiction Prototyping for Engineering and Product Innovation, and Scientific Theatre: Multidisciplinary Approach to Designing Intelligent Environments. Many of these workshops have been regularly running with IE conferences, providing a focused forum for open discussion and cross fertilization of ideas on emerging and multidisciplinary topics. The proceedings of the workshops were published as a volume by IOS Press.

In addition to the paper presentations, the conference program included four keynote speeches. Sumit Paul-Choudhury, editor of *NewScientist.com*, London, discussed the role of science communicators in shaping the future of scientific discovery. Wolfgang Wahlster, DFKI, discussed how intelligent Car2X technologies create smart spaces inside connected cars and their environment and presented a new generation of car assistants that provide a broad range of situation-aware services from local danger warnings, intelligent intersection and traffic-light management, to persuasive eco-driving coaching. Steve Goodhew, Nottingham Trent University, commented on the interrelationship between energy usage, the building fabric and the behavior of building occupants and presented ideas on how intelligent environments could contribute to energy savings in domestic buildings. Vinny Cahill, Trinity College Dublin, presented self-organizing architectures for autonomic management of future cities, to improve quality of life and ensure sustainability in future cities, which will rely on information technology to optimize the delivery of services and the use of resources.

The best paper award, sponsored by IOS Press, was presented to F. Becker, P. Jakimovski, S. Sigg, H. R. Schmidtke, and M. Beigl, for their paper *Collective Communication for Dense Sensing Environ-*

ments. At the banquet, Brian David Johnson talked briefly about the origins of science fiction prototyping in the earlier IE conferences.

More than 100 delegates attended the workshops and the conference. These included representatives from academe, industry, and government labs and from specialties including software engineering, artificial intelligence, human factors, architecture, pervasive computing, and even psychology, art, and design. Attendees and authors came from the Belgium, Czech Republic, Egypt, Finland, France, Germany, Greece, Ireland, Italy, Japan, Lebanon, Malaysia, Netherlands, Portugal, Romania, Slovenia, Spain, UAE, the UK, and the USA.

The conference was honored by Roger Eccleston, dean of the School of Science and Technology, who addressed the opening ceremony. The Nottingham Trent University provided us with all the facilities we needed to make this conference possible.

This year the conference was endorsed for the fourth time by the Association for the Advancement of Artificial Intelligence. The Eighth International Conference on Intelligent Environments will take place on July 2012 in León, Mexico.

**Juan Carlos Augusto** (Ph.D., 1998) focuses on the design and implementation of intelligent environments. He has contributed to the research community with more than 150 publications and is editor in chief of the book series on Ambient Intelligence and Smart Environments and coeditor of the *Journal on Ambient Intelligence and Smart Environments*.

**Sean Hanna** is a lecturer in space and adaptive architectures at University College London, director of the Bartlett Graduate School's MSc/MRes programs in adaptive architecture and computation, and academic director of the Doctoral Training Center in Virtual Environments, Imaging, and Visualisation. His current research is primarily in developing computational methods for dealing with complexity in design and the built environment.

**Achilles Kameas** is an assistant professor at the Hellenic Open University (HOU), Greece, where he teaches software engineering. He is director of the Educational Content, Methodology, and Technology Laboratory, and director of Research Unit 3 at the Computer Technology Institute where he performs research on the design of ambient intelligence systems, specializing in architectures, middleware, knowledge management, and ontologies.

**Ahmad Lotfi** is a reader in computational intelligence in the School of Science and Technology, Nottingham Trent University, UK, and the group leader for the Ambient and Computational Intelligent research group. Lotfi is the author of more than 70 scientific papers in the area of computational intelligent and control. His main scientific research interest includes computation intelligence, ambient assistive living, robotics, fuzzy logic and systems, and intelligent data analysis.

# AAAI-12 Special Track on Robotics

## Twenty-Sixth AAAI Conference on Artificial Intelligence

Toronto, Ontario, Canada, July 22–26, 2012

*Sponsored by the Association for the Advancement of Artificial Intelligence*

From the days of Shakey to current automatic cars, Robotics has been a formidable proving ground for artificial intelligence. In the Special Track on Robotics, we invite papers that challenge the limits of AI and machine learning algorithms with applications to real-world robotic systems. The track will cover applications of AI to a diverse set of domains, including perception, motion planning, control, human-robot interaction, and decision-making. This year, we are particularly interested in showcasing research on the following topics:

- ⇒ 3D perception for navigation, manipulation, and environment understanding
- ⇒ Autonomous and human-in-the-loop manipulation
- ⇒ Intelligence and perception for human-robot interaction
- ⇒ Nonlinear control and decision making
- ⇒ Learning of control, manipulation, and tasks

Papers will be reviewed by qualified reviewers drawn from a special track committee, with specific expertise in the aforementioned areas, as well as the general AAAI program committee. We encourage submitters to clearly explain how their paper fits into the Special Track on Robotics and answers the call for papers. In rare cases, submissions to this special track deemed not to be relevant may be considered for review for the general technical papers track at the discretion of the track and conference cochairs.

In addition, we would like to have robotics demonstrations at the AAAI conference. Authors are encouraged to submit auxiliary material detailing any live demonstrations relating to their submissions.

### Author Registration

Authors must register at the AAAI-12 Robotics web-based technical paper submission site (available December 2, 2012) before they submit their abstracts and papers. The software will assign a password, which will enable the author to log on to submit an abstract and paper. In order to avoid a rush at the last minute, authors are encouraged to register as soon as possible after December 2, and well in advance of the January 20 abstract deadline.

- ⇒ Registration will close at 11:00 PM PST on January 20, 2012.
- ⇒ Abstract submission will close at 11:59 PM PST on January 20, 2012.
- ⇒ Final paper submission will close at 11:59 PM PST on January 24, 2012. Abstract and Paper Submission

### Abstract and Paper Submission

Papers may be no longer than 7 pages, where page 7 must contain only references, and no other text whatsoever. Papers must be in trouble-free, high-resolution PDF format, formatted for US Letter (8.5" x 11") paper, using Type 1 or TrueType fonts. Papers must be formatted in AAAI two-column, camera-ready style (see the author instructions page). Please note that these formatting instructions are for final, accepted papers; no additional pages can be purchased at the review stage. In addition, the copyright slug may be omitted in the initial submission phase. Please also refer to the instructions that follow on how to prepare your paper for blind review.

Electronic abstract and paper submission through the AAAI-12 Robotics paper submission site is required on or (preferably) before the deadline dates listed above. We cannot accept submissions by e-mail or fax. Authors will receive confirmation of receipt of their abstracts or papers, including an ID number, shortly after submission. AAAI will contact authors again only if problems are encountered with papers. Inquiries regarding lost papers must be made no later than January 27, 2012.

### Review Process

Program committee members will identify papers they are qualified to review based on the information submitted electronically (the paper's title, keywords, and abstract). Their reviewing will be done blind to the identities of the authors and their institutions. Authors will have a limited opportunity to respond to initial reviews. This author's feedback may then be taken into account in the final reviews and recommendations. The program committee's reviews will make recommendations to the senior program committee, which in turn will make recommendations to the track cochairs. Although the track cochairs will formally make all final decisions, in practice almost all will be made earlier in the process.

### Preparing Your Paper for Blind Review

Reviewing for the AAAI Conference is blind to the identities of the authors. The first page, on which the paper body begins, should include the title, abstract, content areas, and ID number (if available), but not the acknowledgments and names or affiliations of the authors. The references should include all published literature relevant to the paper, including previous works of the authors, but should not include unpublished works.

When referring to one's own work, use the third person, rather than the first person. For example, say "Previously, Newell (Newell 1996) has shown that..." rather than "In our previous work (Newell 1996) we have shown that..." Try to avoid including any information in the body of the paper or references that would identify the authors or their institutions. Such information may be added to the final camera-ready version for publication.

### Submissions to Other Conferences or Journals

Papers submitted to this conference must not have been accepted for publication elsewhere or be under review for another AI conference. The guidelines of the AAAI policy on multiple submissions are fully detailed at the AAAI-12 website and must be carefully followed.

### Publication

Accepted papers will be allocated seven (7) pages in the conference proceedings. Up to two (2) additional pages may be used at a cost to the authors of US \$275 per page. Final papers exceeding page limits and those violating the instructions to authors will not be included in the proceedings. Authors will be required to transfer copyright of their paper to AAAI.

### Questions and Suggestions

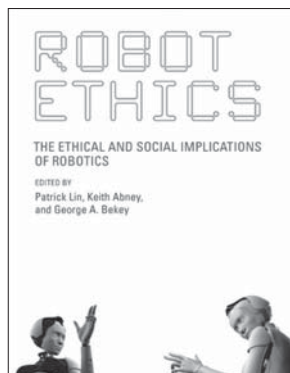
Concerning author instructions and conference registration, write to [aaai12@aaai.org](mailto:aaai12@aaai.org). Concerning suggestions for the program and other inquiries, write to the special track cochairs.

### Program Cochairs

Kurt Konolige (Willow Garage, USA) and Sidd Srinivasa (Carnegie Mellon University, USA).

### Timetable for Authors

- ⇒ January 20, 2012: Abstract submission deadline
- ⇒ January 24, 2012: Electronic papers due
- ⇒ March 27, 2012: Notification of acceptance or rejection
- ⇒ April 17, 2012: Camera-ready copy due at AAAI office



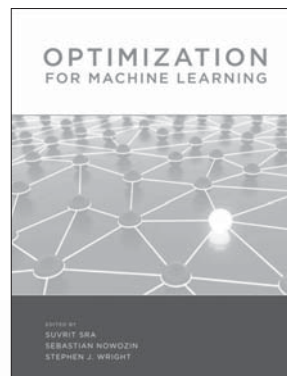
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# The Twenty-Sixth AAAI Conference on Artificial Intelligence

Toronto, Ontario, Canada, July 22–26, 2012

Sponsored by the Association for the Advancement of Artificial Intelligence

[www.aaai.org/aaai12](http://www.aaai.org/aaai12)

AAAI-12 is the Twenty-Sixth AAAI Conference on Artificial Intelligence (AI). The purpose of this conference is to promote research in AI and scientific exchange among AI researchers, practitioners, scientists, and engineers in related disciplines. AAAI-12 will have multiple technical tracks, student abstracts, poster sessions, invited speakers, and exhibit programs, all selected according to the highest reviewing standards. AAAI-12 welcomes submissions on mainstream AI topics as well as novel crosscutting work in related areas. Topics include but are not limited to the following:

Agent-based and multiagent systems ⇨ Cognitive modeling and human interaction ⇨ Commonsense reasoning ⇨ Computer vision ⇨ Constraint satisfaction, search, and optimization ⇨ Evolutionary computation ⇨ Game playing and interactive entertainment ⇨ Information retrieval, integration, and extraction ⇨ Knowledge acquisition and ontologies ⇨ Knowledge representation and reasoning ⇨ Machine learning and data mining ⇨ Model-based systems ⇨ Multidisciplinary artificial intelligence ⇨ Natural language processing ⇨ Planning and scheduling ⇨ Probabilistic reasoning ⇨ Robotics ⇨ Web and information systems

Papers that extend the state of the art, and explore parts of the design space of AI that are not well explored are particularly encouraged. A full list of keywords will be available at the AAAI-12 website in the fall of 2011.

## Special Tracks

In addition to its main technical papers track, AAAI-12 will include several special paper tracks on focused topics, ideas previously presented at AI sister conferences, new challenges to the AI community, or other special areas of interest. These special tracks will be Artificial Intelligence and the Web, Computational Sustainability and Artificial Intelligence, and Robotics.

Each special track will have its own submission process and review criteria, and will have its own program committee of reviewers with appropriate backgrounds. However, the tracks will be an integral part of the conference program and will be subject to the same high standards and rigorous review that are traditional in AAAI. In the proceedings, the special track papers will not be distinguished from the main track technical papers. The Chairs may move submissions between tracks in case that allows for more appropriate reviewing.

## Author Registration

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technical paper submission site (available December 2, 2010) before they submit their abstracts and papers. The software will assign a password, which will enable the author to log on to submit an abstract and paper. In order to avoid a rush at the last minute, authors are encouraged to register as soon as possible after December 2, and well in advance of the January 20 abstract deadline.

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## Publication

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## Questions and Suggestions

Concerning author instructions and conference registration, write to [aaai12@aaai.org](mailto:aaai12@aaai.org). Concerning suggestions for the program and other inquiries, write to the program cochairs.

## Program Cochairs

Joerg Hoffmann (INRIA, France) and Bart Selman (Cornell University, NY, USA)

A complete listing of conference track organizers, area chairs, and senior program committee members will be available on the AAAI-12 website.

## Timetable for Authors

- ⇨ December 2, 2011 – January 20, 2012: Authors register on the AAAI web site
- ⇨ January 20, 2012: Electronic abstracts due
- ⇨ January 24, 2012: Electronic papers due
- ⇨ March 13 – March 15, 2012: Author feedback about initial reviews
- ⇨ March 28, 2012: Notification of acceptance or rejection
- ⇨ April 17, 2012: Camera-ready copy due at AAAI office

## AAAI Has Moved!

AAAI's new address is  
 2275 East Bayshore Road,  
 Suite 160  
 Palo Alto CA 94303 USA  
*Telephone: 650-328-3123*  
*Fax 650-321-4457*

## E-mail Address Changes

Please note that AAAI will be modifying its email addresses in 2012 in an effort to reduce the amount of spam that we are receiving. We will be adding 12 to all email addresses, as follows:

- aaai12
- aiide12
- aimagazine12
- aitopics12
- fellows12
- fss12
- iaai12
- icwsm12
- info12
- membership12
- orders12
- press12
- sss12
- volunteer12
- workshops12

The number will be updated on an annual basis. AAAI can also be reached by filling out the contact form at [www.aaai.org/scripts/Contact/contact.php](http://www.aaai.org/scripts/Contact/contact.php).

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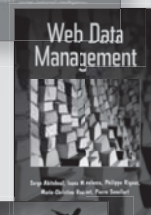
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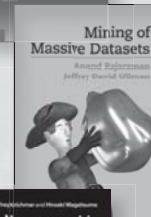
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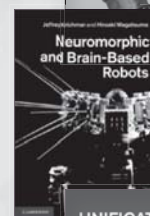
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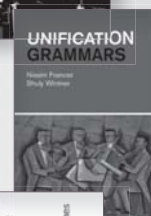
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