

Lecture Notes in Artificial Intelligence

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Preface

The 15th International Conference on Artificial Intelligence in Education (AIED 2011) was the next in a longstanding series of biennial international conferences for high-quality research in intelligent systems and cognitive science for educational computing applications. The conference provides opportunities for the cross-fertilization of approaches, techniques and ideas from the many areas that make up this interdisciplinary field, including: agent technologies, artificial intelligence, computer science, cognitive and learning sciences, education, educational technologies, game design, psychology, philosophy, sociology, anthropology, linguistics, and the many domain-specific applications for which AIED systems have been designed, deployed and evaluated.

To reflect the range of interests that combine advanced technology with advanced understanding of learners, learning, and the context of learning, the theme of AIED 2011 was “Next-Generation Learning Environments: Supporting Cognitive, Metacognitive, Social and Affective Aspects of Learning.” This grew out of the key requirements identified by the editors of the previous AIED proceedings: Vania Dimitrova, Riichiro Mizoguchi, Benedict du Boulay and Art Graesser. As they pointed out, AIED involves “multidisciplinary research that links theory and technology from artificial intelligence, cognitive science and computer science with theory and practice from education and the social sciences.”

The broad theme adopted for AIED 2011 was well-represented in the program, with contributions related to each of the issues. Furthermore, there was much overlap, with individual papers addressing two or more of these areas, and illustrating a variety of the more traditional artificial intelligence techniques as well as those developed to take advantage of growing twenty-first century technologies and related skills. AIED is both keeping up with and leading such developments. We anticipate further growth toward social and collaborative technologies in time for the next conference, as the more mature AIED research is increasingly harnessed to support new (and ever-changing) technologies and learning contexts in formal and informal settings.

The inherently interdisciplinary nature of the field made it very difficult to define specific categories into which to place papers in the Table of Contents for the conference proceedings. Most papers could have been logically categorized into several themes, based on the particular technological approaches they used, the type of system, the methods used in the research, and the teaching domain(s), etc. It is in the nature of our goals to address real problems in supporting learning, and so our work inevitably needs to bring together different stands of research. After much deliberation, rather than make what would to some extent be arbitrary choices, we decided to list papers in alphabetical order by author. We see this as a positive comment on the field of AIED: it is truly

multidisciplinary not only in the areas covered in general, but also within specific research projects.

AIED 2011 received 193 submissions in the categories Full Paper, Poster, and Young Researcher Track (YRT), from 28 countries worldwide. Many of these were from North America and Europe, but the increase in submissions from Asia in recent years continued. Many submissions also came from Australia, New Zealand, and nearby places—the location of this conference perhaps playing a part in raising awareness of AIED in the region, and hopefully leading to increased research interest in the coming years.

The international Programme Committee (PC) and Senior Programme Committee (SPC) comprised members from 22 countries. Their areas of expertise matched well with the categories in which papers were submitted. This not only made it easier to assign reviewers, but also confirmed that the PC and SPC were representative of the current areas of interest in AIED.

Of the 153 Full Paper submissions, 49 (32%) were selected for oral presentation at the conference (8 proceedings pages). Some good submissions could not be accepted, as the cut-off was set very high. Posters offer high quality but perhaps less mature research, allowing for dissemination of newer developments and promising ideas (3 proceedings pages). The YRT offers PhD researchers the opportunity to present their research orally (3 proceedings pages), or in poster form, during the YRT session. The acceptance rate for oral YRT presentation was 39%. The aim is to encourage new researchers to discuss their work with other new researchers and swap experiences; and also to talk to more experienced members of the field to gain feedback on their ideas from the international AIED community. Individual mentoring is also available.

All papers, posters and YRT submissions were reviewed by at least three PC members, at least one of whom was a member of the SPC. There was then a discussion phase amongst the reviewers of each submission, where any inconsistencies were considered before a final meta-review was produced by a member of the SPC. Authors received each of the three or four original reviews, as well as the meta-review. We thank the PC and SPC for their diligence in reviewing and providing useful and constructive feedback, and for their willingness to engage in discussion about papers until a consensus (or conclusion) was reached. So many members of the committees did an outstanding job that it would be difficult to highlight particular individuals. We would like the SPC and PC to know that we received unsolicited and very positive comments from authors about the helpfulness of the reviews – not only in cases where papers were accepted, but also in many cases where they were not.

The conference also had three invited keynote speakers: Janet Metcalfe, speaking about metacognitively guided study in the region of proximal learning; Stellan Ohlsson on multiple mechanisms for deep learning; and John Sweller, discussing cognitive load theory and e-learning. These talks were highly relevant to some of the core AIED considerations, as well as being important in underpinning continuing developments and shifts in the field.

In addition to the above, AIED 2011 had an exciting Interactive Events Session, where participants could see demonstrations and try out AIED applications. Workshops allow detailed presentations and discussions focussed around specific themes, and a tutorial provided engaging interaction and discussion of advanced AIED research. Panel discussions provided insight, reflection, and multiple viewpoints (positive and negative) on the current state of the art, and promising directions for the future from some of the field's leaders.

This time the conference was held at the University of Auckland, New Zealand. The originally selected location was the University of Canterbury, New Zealand, but following the earthquake in Christchurch on February 22, 2011, which damaged much of the city's infrastructure, the local Organizing Committee worked hard to find a feasible and affordable alternative at short notice¹. The University of Auckland very generously offered their space, and we thank them for this, as it was a major factor in helping to continue the conference on (almost) the originally planned dates, and fitting the allocated budget. We also thank Moffat Matthews, from the University of Canterbury, for visiting venues and sorting out many of the unexpected problems as swiftly as was possible under these circumstances.

The Organizing Committee was invaluable in helping to put together a good program, to seek sponsorship, and to publicize the conference. H. Chad Lane and Brent Martin were extremely energetic in bringing together the Interactive Events; Pramuditha Suraweera proficiently oversaw the YRT process, helping newer researchers to understand the purpose of the YRT, as well as answering all their questions; Riichiro Mizoguchi and Bert Bredeweg sought an exciting tutorial – relevant to the many quickly developing directions of the field, while at the same time being sufficiently mature for a tutorial; Cristina Conati and Isabel Fernandez de Castro worked incredibly hard on obtaining workshop proposals, and on organizing the whole workshop process; Tak-Wai Chan and Rafael Morales took over liaison with the local organizers once the final numbers for poster presentations were known, and communicated with the authors about poster requirements; and Jim Greer and Monique Grandbastien chased lively, eloquent people for panel discussions. General publicity for the conference was ably handled by Peter Brusilovsky and Rose Luckin, with Moffat Matthews providing an excellent website and other online support for the conference. Lewis Johnson and Chee-Kit Looi tracked down sponsorship in a global economically difficult time. In addition to those already mentioned, we had help from a few “local” people: James R. Segedy (Vanderbilt), Matthew D. Johnson (Birmingham), and student volunteers at the conference. We also benefitted from previous experiences in various aspects of conference organization offered by Vincent Aleven, Art Graesser and Jack Mostow. To all these people we offer our sincere thanks.

¹ We also express our sympathies for the victims of the terrible earthquake and tsunami in northern Japan. While it is reassuring to learn that most of the researchers from our community are safe, we do extend our sincere support to our colleagues and others who are still recovering from the devastating tragedy.

Finally, we would also like to thank the authors. Of course, we acknowledge their exciting research contributions and are delighted that they chose AIED 2011 as the conference at which to present their work. But this year they also had to deal with uncertainty about the conference location, late information about registration costs because of the necessary re-budgeting, and other associated difficulties. We were impressed by the way in which people took this in their stride, and waited so patiently for decisions to be reached. The AIED community has clearly demonstrated that it is an affable, understanding community.

Despite the unanticipated difficulties, we very much enjoyed putting together this conference. Being scattered around the world meant that at crucial times there was always at least one person awake somewhere with AIED 2011 on their mind. There was also always at least one person ready to take over, to allow us to sleep.

We enjoyed being in the same time zone in what turned out to be a stimulating conference.

Gautam Biswas
Susan Bull
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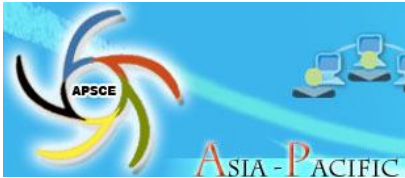
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