Editorial

Wolfgang Nejdl and Peter Brusilovsky

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Dear Readers,

Welcome to the first 2012 issue of the *IEEE Transactions on Learning Technologies*. This year marks *TLT*'s 5th anniversary, and we are pleased to begin this momentous year with a set of exciting papers that describe new advances in technology-enhanced learning.

The issue starts with the paper "Automatic Assessment of 3D Modeling Exams," by Andrea Sanna and his colleagues from Turin. They describe an innovative solution for the assessment of 3D models created for the final exam of a 3D modeling course for architecture students in the graphic and virtual design curriculum at Politecnico di Torino. Assessment is based on computer vision and image analysis algorithms, and promises to be more objective and much more efficient than manual assessment.

The second paper focuses on "An Intelligent Simulator for Telerobotics Training." Khaled Belghith and his colleagues from Canada describe the Roman Tutor system, which has been developed for training astronauts to operate the space station remote manipulator, a robot arm mounted on the international space station ISS. Roman Tutor incorporates a model of the systems operations curriculum, a kinematic simulation of the robotics equipment and the ISS, and an efficient robot path planning component.

The next paper is a survey paper about "Educational Technologies for Precollege Engineering Education." Numerous studies have shown that exposure of precollege students to engineering and related fields greatly impacts their career goals. Mario Riojas and his colleagues from the University of Arizona therefore present an overview of available technologies and systems suitable for these programs, and provide suggestions for teaching methods best applicable in that context.

Personalization and adaption is the focus of our fourth paper, "Expressing Adaptation Strategies Using Adaptation Patterns." Nadjet Zemirline and her colleagues from France suggest a new way to specify adaptation strategies, using combinations of adaptation patterns generated semi-automatically from elementary ones. Their experiments show that this approach has advantages over traditional adaptive hypermedia languages for expressing adaptation strategies.

Another application of Artificial Intelligence technologies to education is explored by a team of researchers from Kyoto University. Their paper "Learning to Estimate Slide Comprehension in Classrooms with Support Vector Machines" describes a successful use of machine learning approaches to estimate student comprehension of lecture slides. These results open interesting opportunities in both personalization and the improvement of human-lead education.

The paper "Facilitating Trust in Privacy-Preserving E-Learning Environments," presented by Mohd Anwar and Jim Greer, discusses privacy and trust, two important topics which are not yet sufficiently explored in the context of online learning. While increased privacy can be considered a threat to reliable maintenance of trust and reputation, the paper presents an interesting privacy-preserving reputation management approach that addresses this unfortunate antagonism.

The title of the next paper, "The Conceptual Structure of IMS Learning Design Does Not Impede Its Use for Authoring," clearly presents its main message. Using the results of a study with 40 university teachers presented in the paper, the authors argue against the common belief that that the conceptual complexity of IMS Learning Design is the key barrier to its adoption.

The last paper in this issue is also probably the most unusual. It focuses on, as the title says, "Using Haptic and Auditory Interaction Tools to Engage Students with Visual Impairments in Robot Programming Activities." The paper merges several important but still rather under-explored research directions: using robot programming to teach computing and programming principles in a K-12 context, addressing the needs of special groups of students such as students with visual impairments, and using haptic and auditory interfaces in education. While reporting interesting results, the paper also carries an added value demonstrating that modern learning technologies can go well beyond the traditional desktop context.

We wish you an interesting reading experience, and are looking forward to submissions of your work and results!

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Wolfgang Nejdl, *Editor-in-Chief*
Peter Brusilovsky, *Associate Editor-in-Chief*

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