Welcome to the first 2013 issue of the IEEE Transactions on Learning Technologies and the sixth year of publication. We are honored to be selected as the new editorial team for the journal and grateful to the TLT Steering Committee for giving us the opportunity to lead TLT for the next three years. The previous editorial team, led by Wolfgang Nejdl, shepherded the journal from its start to its current maturity, leaving it in an excellent state as a leading journal in the field of learning technologies and e-learning. The journal now has an excellent flow of submissions. It has been able to reach an emerging community of researchers exploring innovative learning technologies and to attract excellent papers on a broad range of topics from many countries. We hope to continue this trend over the next few years while further expanding the journal’s coverage.

The next five years promise to be very exciting for researchers and practitioners in the area of learning technologies. The advancement of Internet and mobile devices further broadens the audience that can get access to modern learning technologies. The increased accumulation of learner data opens an opportunity for smarter, user-centered tools for learning approaches. The popularity of social technologies emphasizes the social dimensions of learning. All this stimulates a range of new and interesting developments coming from both industry and research labs—from massive open online courses to personalized iPhone learning apps. In addition, thanks to increased media coverage, prospective audiences have become more aware of these options and more eager to explore them. All this presents a challenge to any established journal in the field of learning technologies. One of our top goals as the new editorial team is to answer this challenge by ensuring a good coverage of important modern technologies and pedagogies. Among our first actions is to extend the Editorial Board and to plan special issues on a range of hot topics, such as social learning technologies and ubiquitous learning. The Call for Papers for the first of the planned special issues is already announced and the new Board members will be introduced in the next issue.

For the current issue, we are pleased to introduce a collection of eight papers covering a range of topics.

The paper “The Collaborative Lecture Annotation System (CLAS): A New TOOL for Distributed Learning” describes a method for university students to annotate video lectures. While watching the video, each student indicates important points and these are merged into a group graph showing points of interest in the lecture. The easily understood graph can provide a visual reminder of the lecture, a means for each student to match an interpretation against the group average, and a tool for the lecturer to check what the students have logged as important. A study with 21 students found that both the individual and the group graph were useful for reviewing and navigating the lecture.

In “Designing Technology for Content-Independent Collaborative Mobile Learning,” Boticki, Wong, and Looi address the issue of how to manage collaborative learning in a classroom where each child is equipped with a mobile device. Their system assigns different content to each student and then supports them in dynamically forming groups to combine and integrate their content to reach a pre-assigned goal. For example, each child may be given a numeric fraction and has to form a group with other learners such that their fractions add up to 1. A design-based research study of versions for teaching mathematics and for Chinese characters showed that dynamic grouping can scaffold the growth of understanding through negotiation, peer instruction, and competition.

A team from the University of Sydney, in their paper “Foundations for Modeling University Curricula in Terms of Multiple Learning Goal Sets,” discusses a software system that enables student teachers to design a sequence of learning activities, topics, and assessments for the period of an entire degree program. Their system has been evaluated in a university department over three years, showing that its reporting tools and visualizations assist in improving the clarity and coherence of the curriculum.

A short paper by Ricardo Queirós and José Paulo Leal, “BabeLO—An Extensible Converter of Programming Exercises Formats,” is focused on a unusual topic: conversion of exercises between different standard formats. Standard formats for exercise representation are created for uniform storage and exchange of exercises developed by multiple authors. Yet, in the case when several standards exist, a converter becomes necessary to support true interoperability. The paper presents and evaluates a specific convertor, BabeLO, for programming exercises.

For information on obtaining reprints of this article, please send e-mail to:
lt@computer.org.
In their paper “Large-Scale Multiobjective Static Test Generation for Web-Based Testing with Integer Programming,” Minh Luan Nguyen, Siu Cheung Hui, and Alvis C.M. Fong explore the problem of static test generation from large-scale question data sets. The authors suggest a new approach, BUG-STG, for static test generation based on integer linear programming. The evaluation of this approach demonstrated that BUG-STG can produce tests of better quality and with higher efficiency than previous approaches.

Finally, three papers in this issue bring the readers back to the ever popular topic of “digital labs,” which was a focus of one of TLT’s recent special issues. Several types of digital labs, including remote labs and virtual labs, are now being used to teach an increasing variety of topics in science and engineering.

The paper “Virtual Instrument Systems in Reality (VISIR) for Remote Wiring and Measurement of Electronic Circuits on Breadboard,” by a team of researchers from UNED, Spain, and the Blekinge Institute of Technology, Sweden, is devoted to VISIR, a popular remote laboratory which has been introduced in one of the earlier issues of our journal. In this paper, the authors compare VISIR with similar tools, offer an extended presentation of several components, and discuss their experience and future plans.

The paper by David Lowe, entitled “Integrating Reservations and Queuing in Remote Laboratory Scheduling,” proposes methods to schedule student demand for remote laboratories that combine advance reservations and queuing for access to the facility. A comparative simulation indicates that a combination of strategies produces a significant reduction in queuing time at peak periods.

The paper “Teaching Advanced Concepts in Computer Networks: VNUML-UM Virtualization Tool,” by a team of researchers from the University of Murcia, Spain, is focused on using digital labs to teach computer network concepts. To help students in mastering this complex topic, the authors developed the education-oriented virtualization tool VNUML-UM and evaluated it over three years in the context of practical courses.

Enjoy reading the issue and—if you are reading it a year or more from now—do not forget that TLT provides free access to its papers after one year from the publication date.

Peter Brusilovsky, Editor-in-Chief
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