

## Preface

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Textbooks have evolved over the last several decades in many aspects. Most textbooks can be accessed online, many of them freely. They often come with libraries of supplementary educational resources or online educational services built on top of them. As a result of these enrichments, new research challenges and opportunities emerge that call for new technologies to enhance digital textbooks and learners' interaction with them. Therefore, we ask: How to facilitate access to textbooks and improve the reading process? What can be extracted from textbook content and mined from the logs of students interacting with it? This workshop aimed to bring together researchers working on different kinds of intelligent learning technologies related to digital textbook. By starting a dialog between researchers who address the problems and challenges of intelligent textbooks from different perspectives, we hoped to establish intelligent textbooks as a new, interdisciplinary research field.

Our vision of intelligent textbooks as a research field includes the following topics of interests listed in the workshop's call for papers:

- Modeling and representation of textbooks: examining the prerequisite and the semantic structure of textbooks to enhance their readability;
- Analysis and mining of textbook usage logs: analyzing the patterns of learners' use of textbooks to obtain insights on learning and the pedagogical value of textbook content;
- Generation, manipulation, and presentation: exploring and testing different formats and forms of textbook content to find the most effective means of presenting different knowledge;
- Assessment and personalization: developing methods that can generate assessments and enhance textbooks with adaptive support to meet the needs of every learner using the textbook;
- Knowledge visualization: augmenting textbooks with concept maps, open learner models and other knowledge-rich extensions
- Collaborative technologies: building and deploying social components of digital textbooks that enable learners to interact with not only content but other learners;

- Smart interactive content: extending online textbooks with various kinds of smart interactive content to improve learning, engagement, learner modeling, and personalization
- Intelligent information retrieval and question-answering for digital textbooks
- Content curation and enrichment: sorting through external resources on the web and finding the relevant resources to augment the textbook and provide additional information for learners.

While we did not receive submissions addressing all of these topics, the number of submitted papers was sufficiently large and the diversity of topics was more than sufficient to represent the emerging field as a whole. After a thorough reviewing, where each submission was reviewed by three to five members of the reviewing committee, which included workshop organizers and PC members, we selected six papers for long presentation and eight other papers and position statements for the short presentation.

In the workshop program, we loosely coupled the long presentation into two sessions, one focused on studies and analysis of already developed textbooks and one focused on technologies for developing novel textbooks. This separation, however, was more for organization purposes and should not be considered as an attempt to classify the variety of submitted papers. Not only we have papers that discuss both the development and evaluation of intelligent textbook, but also many papers that go well beyond this simple dichotomy. We were specifically happy to see several interesting vision statements from well-established research groups on what an intelligent textbook of the future should include. To avoid biasing the readers, we decided not to classify the papers in the proceedings by fine-grained topics, but simply include them in the order of their presentation at the workshop. We believe that this organization will be most convenient for the attendees. We believe, however, that these workshop proceedings will be of interest to a broader community of researchers. The collection of papers featured in the proceedings along with the papers mentioned and cited offer a good representation of the state of the art of this emerging field. We hope, that our workshop will help to promote interest in intelligent textbooks and encourage follow-up work.

We want to thank the program committee members that helped us in preparation of this workshop:

- Christopher Brinton, Purdue University
- VinayChaudhri, SRI International
- Barbara Ericson, University of Michigan
- Brendan Flanagan, Kyoto University
- Kobi Gal, Ben Gurion University
- Elena Glassman, Harvard University
- Phillip Grimaldi, OpenStax
- Noboru Matsuda, North Carolina State University
- RogerNkambou, Université du Québec À Montréal
- Xavier Ochoa, New York University
- Hiroaki Ogata, Kyoto University

- Cliff Shaffer, Virginia Tech
- Atsushi Shimada, Kyushu University
- Erin Walker, Arizona State University
- Andrew Waters, OpenStax