Journal of Universal Computer Science, vol. 16, no. 19 (2010), 2754-2755
submitted: 22/9/10, accepted: 29/9/10, appeared: 1/10/10 © J.UCS

Advances in Authoring of Adaptive Web-based Systems

J.UCS Special Issue

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Authoring of Adaptive Hypermedia has been long considered as secondary to adaptive hypermedia delivery. However, authoring is not trivial at all. There exist some approaches to help authors to build adaptive-hypermedia-based systems, yet there is a strong need for high-level approaches, formalisms and tools that support and facilitate the description of reusable adaptive websites. However, a shift in interest occurred (fuelled in part by the A3H workshop series), as it became clearer that the implementation-oriented approach would forever keep adaptive hypermedia away from the 'layman' author. The creator of adaptive hypermedia cannot be expected to know all facets of this process, but can be reasonably trusted to be an expert in one of them. It is therefore necessary to research and establish the components of an adaptive hypermedia system from an authoring perspective, catering for the different author personas that are required. This type of research has proven to lead to a modular view on the adaptive hypermedia.

Whilst all of the papers presented in this special issue discuss various aspects of this modular approach to authoring, the first three focus specifically on how best to simplify the authoring process. In Paper 1 ("Merging Strategies for Authoring QoE-based Adaptive Hypermedia") the authors show how the modularization of complex adaptation strategies, along with their subsequent merging and re-use takes adaptive authoring a step closer to being readily accessible by the lay author. Paper 2 ("Authoring and Delivering Personalised Simulations – an Innovative Approach to Adaptive eLearning for Soft Skills"), presents the ACTSim tool that has been specifically designed to allow for the creation of training simulations by subject matter experts rather than programming experts (as is often the case in these complex simulation tools).

This is followed by paper 3 ("Authoring of Probabilistic Sequencing in Adaptive Hypermedia with Bayesian Networks") Bayesian networks are employed as a means to adapt the sequence of learning activities.

The fourth paper ("Execution Model and Authoring Middleware Enabling Dynamic Adaptation in Educational Scenarios Scripted with PoEML") presents the 'Perspective-oriented Educational Modeling Language' and authoring tools as a novel EML that will allow for dynamic run-time adaptation.

Paper 5 ("A Tool for Managing Domain Knowledge and Helping Tutors in Intelligent Tutoring Systems") in which the authors have created a tool specifically to aid tutors in organizing and composing their Learning Objects (as a network and as additional metadata).

In Paper 6 ("Model-driven Transformation and Validation of Adaptive Educational Hypermedia using CAVIAr") the authors discuss the rarely addressed issue of courseware validation, with the advancement of authoring tools it is important that each lesson can be validated by the lesson author so as to ensure that the correct pedagogical issues are encompassed.

In the final paper (paper 7, "A Method for Supporting Heterogeneous-Group Formation through Heuristics and Visualization") a slightly different area is the focus – that of group formation. With the growth of social and group activities in eLearning, it is important that authors are aided in the often complex task of automatic group assignment.

The editors would like to thank the authors and reviewers for their time and efforts in contributing to this special issue.

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September 2010