Guest-editorial

Special issue: Knowledge-based Environments and Services in Human-Computer Interaction

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This special issue on "Knowledge-based Environments and Services in Human-Computer Interaction" aims at presenting some novel environments and services and relevant challenging issues and proposed solutions that allow users to interact with computers more efficiently. As computer users are spreading and include people of all ages, backgrounds, professions, education levels, aims, profiles, preferences and personalities, human-computer interaction has to undertake the difficult task of user modeling, personalization, adaptivity, virtual reality, intelligent multimedia interaction and so on. The special issue focuses on both theoretical issues as well as applications of intelligent environments for human-computer interaction including challenges, open research issues, design methodologies, user interface development life cycle, empirical studies, multimedia/multimodal signal processing and evaluation.

We have received a large number of submissions to the special issue. Each submitted paper was reviewed by at least two independent reviewers for novelty and clarity of the research reported in it. Additionally, as guest co-editors, we looked over all the manuscripts. For inclusion in the special issue, we have selected six papers from those submitted.

The first two papers describe novel *user modeling* approaches in human-computer interaction environments. Specifically, the first paper, authored by Savvopoulos and Virvou, is on a "User Modelling Server for Adaptive Help," while the second paper, authored by Loboda, Brusilovski and Grady, is on "An Agent for Versatile Intelligence Analysis System."

The next two papers present novel ambient intelligence approaches in human-computer interaction environments. Specifically, the third paper, authored by Heinroth, et al., is on "Human-Computer Interaction in Next Generation Ambient Intelligent Environments." On the other hand, the fourth paper, authored by Inoko, Matsumoto and Kuroda, is on "Knowledge-based Environments for Instructors' Decision Making in Chemical Process Laboratory."

The final two papers present challenges and proposed solutions related to novel virtual human-computer interaction environments. Specifically, the fifth paper, authored by Akoumianakis et al., is on "Transformable Boundary Artifacts for Knowledge-based Work in Cross-organization Virtual Communities Space," while the final paper, authored by Anya, Nagar and Tawfik is on "Building Adaptive Systems for Collaborative e-Work: The e-Workbench Approach."

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