

Visualization, Animation and Simulation for Learning

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Abstract:

Past research addresses the advantages of multimedia for learning (e.g. Holzinger, 1997; Mayer, 2001, Weiss et al. 2002). Despite the huge enthusiasm for educational visualizations, animations and simulations, many questions still remain as to their effective design. Since developers are now able to include a wide range of visual and auditive elements, the complexity of design decisions is steadily increasing. This immediately raises questions about the appropriateness of a user-centered development (e.g. Edwards & Holland, 1992, Shneiderman, 1998, Holzinger, 2004). For example, one of the most important considerations in a simulation's interface is still how to assure that the feedback is adequate for the end-user. Cognitive psychologists (including Kulhavy, 1993; Bransford, 1999) have long regarded this feedback as a critical source of information to assist learners in restructuring their knowledge and supporting their meta-cognitive processes. Consequently, much research is still needed to ensure that design decisions are based on the psychological and educational needs of the individual end-users and not simply on what the computer or the programmer is capable of doing. This talk will address both research and development issues in order to bridge the gap between science and industry and show future possibilities.

Biographical Information:

Andreas Holzinger is currently Visiting Professor at Vienna University of Technology, Institute for Software Technology and Interactive Systems (IFS). He was Visiting Professor at Innsbruck University, Institute for Organization and Learning (IOL) in winter term 2004/05. He is Consultant for the Austrian and German Ministry of Science, National expert and IST evaluator in the EC, Industrial Consultant, member of the International Federation of Information Processing (IFIP) and European Research Consortium in Informatics and Mathematics (ERCIM). He is elected chair of the WG HCI&UE of the Austrian Computer Society. Holzinger started his career as apprentice in IT in 1978, finishing as Radio- and Television Technician (1981); Foreman in Industrial Electronics (1983); College of Further Education Bournemouth (UK) with honors in Computer Science (1985/86); After extensive industrial experience, during which he attended evening classes, he was awarded Chartered Engineer for Communications (CEng, 1990); Diploma as Lecturer for Adult Education (DipEd, 1992); Studies of Communication Engineering (BEng, 1993), Physics and Psychology (MSc, 1995) as well as Media Pedagogy and Sociology (MPh, 1996) at Graz University of Technology and Graz University. Doctoral promotion with summa cum laude in Cognitive Science (PhD, 1997). Visiting Lecturer in Berlin (Germany) in 2002 and 2003; Venia Docendi (Univ.-Doz., Associate Professor, 2003) in Applied Information Processing. To date 130 publications and 85 lectures and talks. More Information: www.basiswissen-multimedia.at (click on Holzinger Home).