

GUEST EDITORIAL PREFACE

Special Issue on Human Work Interaction Design

Arminda Guerra Lopes, Madeira Interactive Technologies Institute, University of Madeira, Funchal, Portugal

Paola Amaldi, Department of Psychology, School of Life and Medical Sciences, University of Hertfordshire, Hatfield, England, UK

IFIP 13.6 Human Work Interaction Design (HWID) is a working group, which aims to establish relationships between empirical work-domain studies and Human Computer Interaction (HCI) design.

Our concern is to extend the long tradition of HCI to study the connections between interaction design and the work context, in the light of the fact that the world that we work in has become much more digital in recent years. Human work in organizations has achieved new meaning through the relations between interaction design (including usability) and user experience (UX).

Human work analysis involves investigating user goals, user requirements, tasks and procedures, human factors, cognitive and physical processes, and the contexts (organizational, social, cultural) in which these take place. In particular, in the HCI and human factors tradition, work is analyzed as end-user tasks, performed within a work domain: actions are performed together with other people in a field setting, that is, the user's experience of

using systems are social and organizational experiences. UX, usability and interaction design are influenced by these approaches and techniques for analyzing and interpreting the human work, which is eventually manifested in the design of technological products, systems and applications.

The issues underpinning human work interaction design can be explored within a number of complementary perspectives with the aim:

- To encourage empirical studies and conceptualizations of the interaction among humans, their variegated social contexts and the technology they use, both within and across these contexts.
- To promote the use of knowledge, concepts, methods and techniques that enable user studies to acquire a better perception of the complex interplay between individual, social and organizational contexts and thereby a better understanding of how and why people work in the ways they do.

- To promote a better understanding of the relationship between work-domain based empirical studies and iterative design of prototypes and new technologies.

These considerations form much of the initiative for this special issue of Human Work Interaction Design. Our belief is that the output of the presented papers will help to summarize and reach conclusions, concerning discussions of work analysis and how the results of these are manifested in the design of technological products, systems and applications.

To achieve this goal, we invited submissions to cover any area related to:

- Techniques and methods for mapping the relations between work analysis and interaction design
- How work analysis can feed into interaction design evaluation
- Design cases and case studies of work analysis in medical and safety critical ICT, enterprise-level systems, e-government services, or mobile devices
- Synergies between work analysis and model-driven interface development
- Impact of emerging interaction technologies in human work practice

Following peer review, six papers have been accepted for publication in this special issue.

In the first paper, by Paola Amaldi and Anthony Smoker entitled: ‘An organizational study into the concept of “automation policy” in a safety critical socio-technical system’, the opening statement is that the massif introduction of digital systems in all areas of productive life has not been accompanied by an adequate vision of what is to be expected by profound changes introduced in managing and controlling complex processes. The investigation is carried out within the UK National Air Traffic Management service provider (NATS) through a series of surveys and workshops targeting mainly NATS and industry at middle

management level. The findings highlight that a lack of a strategic view, i.e., *automation policy*, is one of the main concerns running through the concerned parties.

The second paper, by Tetsuro Chino, Kentaro Torii and Naoshi Uchihira, entitled: ‘Speech Interaction Analysis on Collaborative Work at an Elderly Care Facility’ explores the issues of nursing and care as central aspects of healthcare services, and improvements in the quality and efficiency of healthcare processes. They argue that these tasks involve both physical actions and information processing, which they call “action-oriented intellectual services.” A smart voice tweet system for nursing and care is proposed to overcome problems of services and current information and communication technology systems.

The third paper by Pedro Campos, Hildergardo Noronha and Arminda Guerra, entitled: ‘Work analysis methods in practice: the context of collaborative review of CAD models’, presents a virtual reality system for visualization, navigation and review of 3DCAD models in the oil industry domain. The system goal is to allow engineers and others to work in collaboration. Concerning the usage of different work analysis methods, they conclude that hierarchical task analysis was not as effective in obtaining a clear, common vision about the work domain. Storyboarding was the most useful technique, as it promoted the discovery of novel factors that differentiate the solution, while simultaneously supporting the human work at offshore engineering design and review sessions.

The forth paper, by Olga Druzhinina, Ebba Thora Hvannberg and Gyda Halldorsdottir entitled: ‘Feedback Fidelities in Three Different Types of Crisis Management Training Environments’, addresses differences between learning feedback types in three environments: (i) a real-life training exercise; (ii) a table-top exercise; and (iii) a design of an experiential training simulator, using three types of fidelity: physical, functional and psychological. The study indicated that there were few occurrences of psychological fidelity of feedback; high fidelity can be achieved in the absence of

feedback forms, categorized as psychological; and the fidelity analysis of feedback types can be useful for designing feedback for learners in a training simulator.

The fifth paper by Ricardo Proença, Arminda Guerra and Pedro Campos entitled: 'A Gestural recognition interface for intelligent wheelchair users', describes a system that exploits novel human-machine interfaces, based on the recognition of static gestures of human hands. The proposal is based on simple computational processes and low-cost hardware. The development involves a comprehensive approach to computer vision problems, based on video image capture, image segmentation, feature extraction, pattern recognition and classification. The system will improve the way that differently-able users will have their life significantly facilitated in a natural and intuitive way, through the use of new models of interaction.

Finally, Zheng Dai and Kasper Paasch present: 'A web-based interactive questionnaire for PV application'. They focus on questionnaires as one fundamental method for

carrying out investigation and research. However, they consider that the quality of the research may be unsatisfactory, because participants get tired of it, due to the feeling that the research experience is long and boring. This results in low quality research. They developed an interactive questionnaire as an effective method to involve responders actively. The development of this tool is a dynamic process, which is part of a research project called Sunrise-PV. They adopt participatory design as a research method to develop the research tool in several iterations.

Last but not least, we would like to thank the journal editor in-chief, José Abdelnour-Nocera for the invitation to edit this special issue along with the reviewers of the papers: Paola Amaldi, Arminda Lopes, Ganesh D. Bhutkar, Helja Franssila, Anant Bhaskar Garg, Ingrid Haug, Dinesh Katre, Rikke Ørngreen, Simone Rozzi, and Anna Swartling.

Arminda Guerra Lopes

Paola Amaldi

Guest Editors

IJSKD