PREFACE

Human Computer Interaction Perspectives on Industry 4.0

A reflection on research methods is an essential part of any project related to design Today we are facing a new era of industrial automation and interconnection which drives the transition of human workplaces. New technologies but also novel business processes lead to a shift of worker related requirements at the data-intensive manufacturing workplace on the shop floor or in knowledge-intensive maintenance field operations. HCI research is already dealing with these new challenges by developing and providing practical assistance solutions which bring together again the power of industrial automation with the flexibility of human intelligence.
We wish you an interesting reading with the four papers collected in this special issue on “"Human Computer Interaction Perspectives on Industry 4.0". They all shed a different light on ongoing HCI research in this exciting interdisciplinary field.
The paper “Mobile Service Technician 4.0 – Knowledge-Sharing Solutions for Industrial Field Maintenance” by Kaasinen et al. describe a human-centered design process for future workplaces of mobile service technicians. The paper demonstrates nicely the transformation of traditional workplaces through new technologies and the implications on human-centered design processes. In particular knowledge sharing will be affected but also time savings from avoiding useless waiting periods for technicians.
The paper “University-industry Interoperability Framework for Developing the Future Competences of Industry 4.0” by Kusmin et al. is a good example for the changing nature of higher education in preparing students for future workplaces. It proposes a dynamic work-integrated curriculum where competency-related feedback loops can be established between higher education institutes, industry and students with the goal to develop work-integrated learning models.
The paper “Teaching Styles of Virtual Training Systems for Industrial Applications – A Review of the Literature” by Loch et al. is a review of existing virtual training systems for industry 4.0. It reviews almost 50 papers along the dimensions instruction (concrete, abstract, overview, structure), presentation (output modality/device, realism, feedback), interaction (input device, activity) and adaptation (adaptivity, contextual factors, adaptability). The conclusions are that the systems are very similar in teaching but limited in the adaptation dimension.
Murauer and Pflanz present a field study with “A full shift field study to evaluate user- and process-oriented aspects of smart glasses in automotive order picking processes”. One of the major current limitations is the lacking full shift capabilities of AR devices. In this study, health oriented aspects as well as performance aspects are researched using smart glasses in order picking processes.

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