

# **Technology and Disability AAATE 2013 Special Issue**

## **Guest Editorial**

### **Papers from the AAATE 2013 Conference**

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This special issue of Technology and Disability is dedicated to the AAATE 2013 Conference. The AAATE - Association for the Advancement of Assistive Technology in Europe ([www.aaate.net](http://www.aaate.net)) promotes every odd year an international conference on Assistive Technology. Its 12<sup>th</sup> edition was held in Vilamoura, Portugal, on September 19-22, 2013.

As defined by the AAATE, Assistive Technology (AT) is an umbrella term indicating any product or technology-based service that enables people of all ages with activity limitations in their daily life, education, work or leisure. The scientific field of AT is highly interdisciplinary, encompassing all aspects of assistive technology, such as use, research, development, manufacture, supply, provision and policy. The AAATE 2013 Conference Program Board welcomed papers in all these areas and this issue contains a selection of the best papers, as judged by the Conference Scientific Board. Interestingly, this selection includes articles representing the broad spectrum of the scientific field, reporting exploratory, basic and applied research works, faithful to the AAATE 2013 Conference motto: *from research to practice*.

The first paper - “The Neurophysiology of augmentative manipulation: A method for technical implementation” by Alvarez et al. - presents an exploratory research work aiming at studying cognitive processes underlying indirect robotic manipulation when compared to direct manipulation. Authors are still taking the first steps towards the goal, but this is a promising research venue as it may inform different cognitive requirements that are needed to use assistive technology in general. Liliana Alvarez received an honourable mention in the AAATE 2013 Conference Young Researcher Award competition for the work reported in this paper.

In the second paper – “Word and Sentence Prediction: Using the Best of the Two Worlds to Assist AAC Users” by Garcia et al. - authors propose to complement the standard Word Prediction methods in Speech-Generating Devices (SGD) with a Sentence Prediction System. Tests conducted with one SGD user and with 40 persons without disabilities indicate that this is a solution worth to be further explored.

The work reported in the third paper – “Inclusive AAC - Multi-modal and Multilingual Language Support for All “ by Lundälv et al. – the recipient of the AAATE 2013 Conference Best Paper Award, though grounded on research projects initiated more than 20 years ago, is inspired in a still visionary perspective of Augmentative and Alternative Communication (AAC) systems. In contrast with the traditional models of dedicated and mainly proprietary AT and AAC software product development and marketing, the paper aims at the development of

an open infrastructure for multi-modal and multilingual language support for a wide area of applications.

All theoretical approaches to AT design encourage the active involvement of end users in product design. A good example is given in the fourth paper – “Development of Input Device for Electric Wheelchair Considering Physical Functions of Persons with Severe Duchenne Muscular Dystrophy” by Shino et al. – where authors address the customization of an input device to control an electric wheelchair for persons with severe Duchenne muscular dystrophy. A methodology is described including the evaluation of the person’s capabilities, customization of the input device using rapid prototyping techniques, and evaluation of user performance with the input device. The methodology reported can be periodically applied ensuring the user can maintain functionality despite disease progression. Yuki Yamamoto received the Young Researcher award for this paper.

Population aging and the raising dependence on ICT applications motivates the research on ICT accessibility to elderly with mild cognitive impairments. In the fifth paper – “A Novel Accessibility Assessment Framework of GUI using Cognitive Impairments Simulation” by Tsakiris et al. - authors propose the use of Virtual User Models incorporating motor, vision, hearing and cognitive capacities to automatically assess ICT products’ GUI accessibility.

Standardization within the AT field is a recurring theme with many impacts. AT Information Systems, AT Decision Support Systems, or a global infrastructure for automatic personalization of any ICT device on the basis of each individual needs, to name just three examples of ongoing initiatives, heavily depend on the standardization of the description of AT products. The sixth paper - “A Taxonomy for ICT Assistive Technology Products” by Gower et al. – is an effort towards the goal of standardizing the description of ICT-based AT products.

On the seventh paper – “Sustainable Solutions for Wheelchair and Seating Assistive Technology Provision: Presenting a Cosmopolitan Narrative with Rich Pictures” by Gowran et al. – authors address the provision of wheelchair and seating assistive technology using a systems approach and incorporating sustainability concepts. Recommendations for changing policies, both nationally (Ireland) and internationally are given.

Having started with an exploratory research work, going through basic and applied research works, the last paper in this special issue takes us to outcomes assessment of AT use. Evaluating the impact of assistive technology on the quality of life of users, from their perspective, is of paramount importance. It provides the metric by which AT design and intervention should be evaluated and it is a good predictor of AT adoption and use. Paper “Item Development for the Psychosocial Impact of Assistive Devices Scale for Continence (C-PIADS)” by Jutai et al. describes the initial work on the development of a specific Psychosocial Impact of Assistive Devices Scale to address the psychosocial impact of continence management technologies.

We would like to thank the authors for accepting the challenge of submitting revised and extended versions of their AAATE 2013 Conference papers to this special issue. We are also in debt to the reviewers for their effort and contributions to this special issue.