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Preface: Proceedings of the Fourth International Workshop on Physicality

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## PREFACE

<http://www.physicality.org/physicality2012/>

Our physical interaction with the world involves every part of our bodies. Physicality 2012 is the Fourth in the international workshop series aimed at exploring design challenges, theories and experiences in developing new forms of interactions that exploit human physical interaction with digital technology. Physicality-based interactions extend feedback beyond the visual, thus emulating the experiences gained through our interaction with the world via our non-visual senses and control capabilities such as gesture, speech and touch.

### CONTENT

As in previous workshops in this series, this year's range of papers and participants is both diverse and diffuse. The authors' interests include aspects of technology, design, embodied interaction and interactive installation.

As befits such cross-disciplinary workshop, the invited keynote by Fabian Hemmert from Deutsche Telekom Labs is one with some relevance to most. Fabian will be discussing his explorations of the possibilities of haptic interaction in future visions of feeling digital content. He will also be covering the potential impact on the human condition of an age of information abundance.

The authors' contributions also cover a broad spectrum which we have categorized under the following themes:

***Bodily Interaction.*** We interact with physical objects using our own physical bodies. Altakrouri and Schrader focus on the role and use of the body, drawing from a large range of design considerations, from the basic body movement description to adaptation mechanisms, through disabilities and composition of interactive solutions. Hood utilises choreography to analyse movement in the gaming world while Furbach and Maron looks at how people interact with a public display through gestures.

***Framework for Rapid Prototyping.*** Rapid prototyping mechanisms are central to the design of computational products and systems. Bellucci, Malizia and Aedo introduce a new prototyping approach using various sensors and effectors to bridge the physical and digital worlds. Zampelis, Gill, Loudon and Walker instead propose a mixed reality based approach to prototyping.

***Interactive Installation.*** This group of papers proposes various installations that explore different aspects of the human body and its senses and how they influence interaction and design. Clarke and Hornecker present the design of an interactive exhibit that enables the creation of collaborative sketches through the use of tangible devices with an interactive display. Murray-Rust and Jugenfeld propose an artwork installation which functions as a ludic interface to provide a series of sensory experiences mediated and extended by digital technology. Meanwhile Hollingworth *et al.* address the creation of digital objects as a means for exploring museum artefacts and heritage sites, with particular focus on providing people with learning difficulties with a more engaging experience.

***Design Space.*** Moving out from the body, we are also constrained and influenced by the design of the spaces in which we live and interact. Jäeger, Schnädelbach and Glover discuss a prototype adaptive architecture that provides responsive biofeedback environments and explore its physiological impact on people. In contrast, Forshaw, Cruickshank and Dix put forward the notion of Physical-Cyber Environments to bridge hybridity and design and propose a method to develop design ideas for such environments.

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**Devina Ramduny-Ellis, Alan Dix, Steve Gill**

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