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Hapty: A haptically augmented animation tool

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1. INTRODUCTION

Digital tools for creative practices are powerful. However, their power is harnessed through interfaces whose complexity and dependence upon unintuitive means of interaction make them inaccessible to a wide range of skilled practitioners. As a result, a dichotomy has been created between physical creative practices and their digital counterparts, thus preventing skills associated with physical embodiment from exploiting the advantages of digital technologies.

This research seeks to explore the design of digital tools for creative use which embody the rich tacit knowledge of physical hand practice. As a case study, we investigate the intuitive employment of physical skill in conventional non-digital physical stop-motion animation and the lack of it in digital animation techniques.

2. SYSTEM DESIGN

'Hapty', is an interactive system for animation that aims to embody the qualities of skilled hand practice through innovative use of interaction devices that mediate and enhance human cognitive abilities. In this design-led research, 'Hapty' acts as a medium for studying the design methodology of transferring the inherent qualities of physical stop-motion practice in a digital setup. Stop motion is an animation technique where an object is moved in different postures and photographed in each one of them. The photographs are then played back in a sequence thus creating the illusion of movement.

Through a series of key studies, the process reconceptualises the skilled animator's workspace while it unveils different ways through which their practice transforms in the new setting.

The interface uses a haptic device and a 3D mouse as the means to animate a virtual articulated 3D character (Figure 1). A team of highly skilled stop-motion animators from Edinburgh College of Art, specialized in modeling and animating articulated characters (humans and animals), participates in the design process of the system, by evaluating and reflecting upon the key aspects of the design.

Figure 1: *The digital setup*

In the further development stages we aim to involve in the process digital animators in order to explore the additional elements that might be encountered by evaluating the system from their perspective. The aim to design a new medium that will embody the practice of stop motion, harnessing at the same time the power of the digital tools and using intuitive means to achieve the intended actions, reflects the need to advance traditional craft in our rapidly digitalised world. Unless we get the design right, the body of tacit knowledge that is manifested in hand practice and surfaces via skilled action will gradually be rendered obsolete. Design research in this field, then, aims to record and preserve those practices in the digital realm and, by applying tacit skill in a new way, to evolve them.

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