Interactive Experience Proposal for:

One Measure of Happiness

A dynamically updated interactive video narrative using gestures

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Figure 1: Composite video showing Foreground and Background layers

Abstract: One Measure of Happiness is a dynamically generated interactive video that enables viewers to interact with a virtual actress via gesture analysis. In this project we are striving to create an experience of intimate interaction with a virtual character. It is our hope that the interaction model that was developed for the project, coupled with the model of the virtual actress and the project's presentation engine, will create a strong enough suspension of disbelief so as to elicit a sensation of real and intimate interaction with the actress.

Keywords: Interactive Video, Intimate Interaction, Dynamic Video Generation, Gesture Analysis, Virtual Actor, Synthetic Actor, Interaction Model, Suspension of Disbelief, Touch Screen

1. Objectives

- To tell a coherent story interactively, continuously and cinematically through the interplay of three actors: a database-driven story model, an autonomous synthetic character, and an involved and active viewer.

- To create a compelling experience of intimacy between a viewer and a synthetic video character using familiar gestures through an affordable touch-screen interface.

2. Project Description

2.1 Installation

The installation is situated in a physical four-wall compartment. Viewers enter the compartment one at a time through a path of obstacles. Each obstacle involves a prohibition that must be transgressed in order to proceed. At the end of the path, a touch screen is embedded into a wall, with a prohibitive "Don't Touch!" sign above it.

2.2 The Video

The Video is composed of two composite layers: Foreground and Background. In the foreground layer we see a Close-Up shot of the protagonist, a young woman whose face we can touch. The background layer is a back-projection of the protagonist's thoughts, memories and feelings (fig. 1).

2.3 Interactive Experience

Upon reaching the video presentation, the viewer sees a virtual actress projected in front of him or her, with a sign that reads "Don't Touch" over the presentation screen. The need to transgress obstacles along the path of the installation primes the viewer to break this prohibition as well and to overcome the inhibitions associated with touching artworks or a stranger's face.

Viewers are encouraged to touch her by some of the looks that the actress exhibits as well as by some of the words she utters. Slowly, perhaps still hesitantly, viewers try touching different areas of the screen that correspond to different parts of the actress's projected head. This initial input is greeted with almost physical reflex-like reactions. The viewer then starts to explore different touch paradigms with the actress, maybe caressing, touching, or even poking her. The way viewers touch - the location, manner and duration - determines the level of intimacy and confidence they inspire in the protagonist. The physical reactions she exhibits will in and of themselves serve as stimuli to affect the viewer's future interaction with her.

This input (touch) -> output (actress reaction) loop is very similar to the inter-personal interactions that we learn and improve all throughout our lives. The nature of the interaction will inspire or frustrate the will of the protagonist to share her story with the viewer, as well as influence her own interpretation of unfolding story events and their overall meaning.

Using the naturally learned inter-personal interaction model is at one and the same time a very powerful element in our project (making the interaction with our virtual actress very easy and intuitive to learn) while also making it very brittle (since viewers can very easily identify fake or less than realistic reactions from partners in a social interaction).

Part of the challenge of this project is to look for the sweet spot where the potentially gigantic database of actress reactions is scaled down to a pragmatic size by finding the smallest amount of generic reactions to multiple stimuli situations.

Thus, not only are we striving to create a more natural input model for interacting with a virtual actress, but in the process are creating a context where the effects go both ways: provoked or treated badly, the actress will defend herself accordingly, her understanding of her own story will be negative or she might even push the viewer away; treated with empathy, the actress will open up, share her story and maybe come to terms with the dramatic conflict at its core; or, if the viewer is not interacting sufficiently, slip into an introverted mood and dwell upon the points in the story that define her inner conflict. We hope to show a personality that is rich enough to withstand viewer disbelief, and in the process give viewers enough time to explore, test, and then suspend their disbelief and immerse themselves in an actual one-on-one interaction with the actress behind the "glass".

To summarize, our interaction model integrates the viewer into the narrative as a character with a unique and active role - to coax the protagonist into telling her story and to influence her own understanding of its meaning and conclusion. Consequently, the viewer is made aware of the emotional effects that his or her chosen path of interaction induces in the protagonist. A continuous interactive experience that is psychologically, emotionally and morally engaging thus emerges.

2.4 Architecture

Our algorithms have been implemented using Macromedia Director's Lingo scripting language. Using them, foreground and background layers of the movie are chosen in real time from an external clip database. The clips are assembled on the fly by the interaction of three elements: A *narrative and presentation manager*, which is in charge of maintaining narrative progression, coherence and presentation; *the protagonist model*, which houses her autonomous goals, emotions and behavior; and an *interaction manager*, which monitors and interprets the viewer's activity through gesture recognition and a set of dynamic expectations and beliefs.

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