Computer Generated Clay Animation

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Abstract

In this sketch, we propose a new technique for computer generated clay animation. Unlike the traditional approaches based on physical simulations, we focus on generating various animation effects produced by the clay animator.
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Keywords: clay animation, motion effects, deformation

Retargetting Animation Process

Clay animation is popular in movies and games because of its hand-made flavor. However, making clay animation is very time consuming for modifying models and capturing scenes at every frame. Our approach of generating clay-like animation is to sample the creative process, and retargeting them to the approximate character model. In the current system, we focus on the following two animation effects: 1)Temporal surface deformation by fingers, 2)Generating expressive body motion.

Generating Temporal Surface Deformation

One of the typical animation effects of clay animation is non-uniform surface deformation by pressing clay surfaces by creator's fingers. To generate temporal surface deformations, we approximate finger's shape by a mixture of gaussian function. The spacial distribution of the finger location can be determined by sampling real clay animation.

Generating Expressive Body Motion

We classify the typical body motion effects of the clay characters into the following four categories: 1)Anticipation,2)Moving hold,3)Exagerations,4)Follow through. We sample the timing and the degree of the deformation from animation, but apparent motion is different. For example, "moving hold" effects are much longer than the conventional CG animation.

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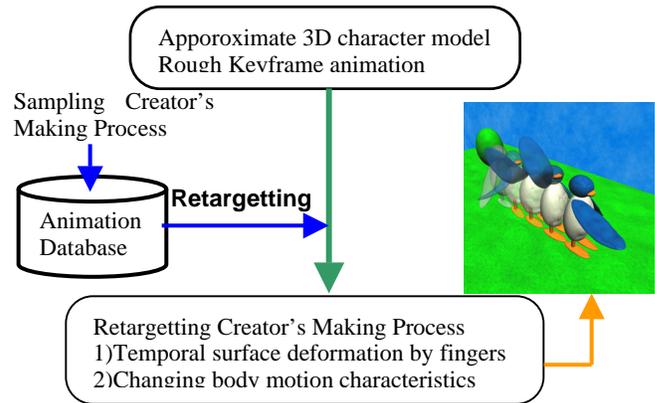Figure3: Simulating temporal surface deformations by fingers
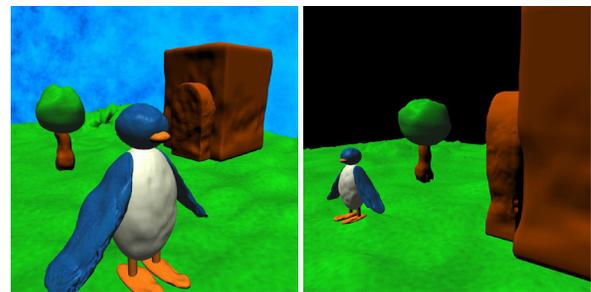

Figure1: System overview

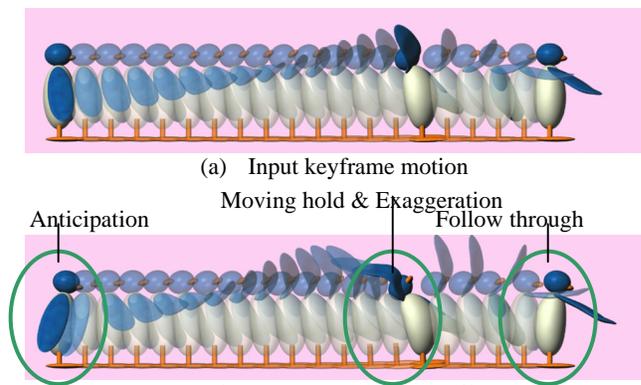Figure2: Example of generated clay-like appearances

(a)　Input keyframe motion

(b)　after applying animation effects
Figure4: Generating expressive motion

References

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