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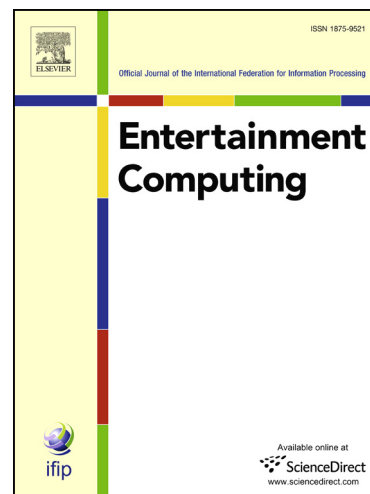
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A Framework for Generic Facial Expression Transfer

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Abstract

This work presents a methodology for generic facial expression transfer, aiming to speed the process of generating facial animation for interactive applications. We propose an adaptive and semiautomatic methodology, which allows to transfer facial expressions from a face mesh to another. The model has three main stages: rigging, expression transfer and animation, where the output meshes can be used as key poses for blendshape-based animation. The input of the model is a face mesh in neutral pose and a set of face data that can be provided from different sources, such as artist crafted meshes and motion capture data. The model generates a set of blendshapes corresponding to the input set, with minimum user intervention. We used a simple rig structure in order to provide a trivial correspondence either with sparse facial feature points based systems or dense geometric data supplied by RGBD based systems. The rig structure can be refined on-the-fly to deal with different input geometric data according to the need. Results show the quality of expressions transfer assessment using face data including artist crafted meshes and performance driven animation.

Keywords: facial animation, facial rigging, expression transfer
2010 MSC: 00-01, 99-00

1. Introduction

Significant effort has been devoted to the development of facial animation methodologies for applications in such diverse areas as entertainment, video content, games, CG films and etc. However, the task of accurately transfer expressions from face to face remains an interesting challenge. This paper presents an adaptive and semiautomatic model, which aims to transfer facial expressions from a face mesh to another. The model has three main stages: rigging, expression transfer and animation, where the output meshes can be used as key poses for blendshape-based animation.

In order to provide animated transferred face meshes, it is necessary to establish control structures that relate their geometry (polygonal mesh) and animation parameters (numerical description of the movements). This process is called *rigging*. Usually, such process is made manually by the animators and it is a time-consuming task, which is related with one of our contributions: to propose a semi-automatic method which requires minimum user intervention.

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