

Posudek vedoucího diplomové práce

Diploma Thesis Supervisor Review

Diplomant/Student: Andrey Stanislavovich Mramornov

Název/Title: Muscle Tension Analysis Based Facial Motion Capture

Vedoucí/Supervisor: Ing. Roman Berka, Ph.D.

The task assigned to the author lies in a study of known methods of facial animation and possibilities of its control. Using obtained information, a motion capture method based on visual analysis of input video was to be proposed, implemented and tested.

Text of the thesis is structured into six main parts and starts with description of already published approaches to the facial animation and specifications of goals. The next part describes basic anatomy elements of human face. These elements are necessary to understand specific features of different types of muscles important for later definition of a model. The third chapter is devoted to a theoretical proposal of all parts giving together the complete chain – muscle model, whole face model, tracking method and whole work-flow. Next part presents description of implementation and experiments. Finally, conclusion with commented results closes the text. Appendices contain documentation of the implemented code and short tutorial how to use it.

Whole text has logical structure, is understandable and designed at good graphical level of both text and images. Although, there are some discontinuities in text formatting (like on pages 23, or 25) or lacks in image quality (like low contrast on image 13 on page 24).

At the technical level, the student shown he is able to analyze a given problem and adapt already published approaches to propose a suitable solution and implement it. The final implementation is connected with the environment of Blender - well known and widely used open source 3D modeler. Author extended the source code of this software by his own data structure representing a model of muscle which can be then used by plug-ins developed in Python to control animations. So the result can be potentially used by a wide community of users around the world.

Here I have several questions:

1. The enclosed CDROM does not contain demonstration in form of rendered videos with animated avatar. Why?
2. What are your results in comparison with already published papers you have read?
3. How complicated would be application of human face grimaces to non-human face model (like in Shrek movie etc.)?

From view of supervisor it can be said that author fulfilled the estimated goals. He was working independently without help and always brought his own proposals to solve particular problems. The final implementation is functional application. Finally, I evaluate author's work by mark **A-výborně (excellent)**.

Praha, 25th May 2015

Ing. Roman Berka, Ph.D.