

Vorlesungen und Projekte WS 09 / 10

[CoGVis/MMC]
graphische datenverarbeitung

Fakultät Medien **Bauhaus-Universität Weimar**

<http://www.uni-weimar.de/medien/cg>
caw[at]medien.uni-weimar.de

Lectures and Projects

- Lectures
 - Computer Graphics (B.Sc.)
 - Algorithms and Datastructures (B.Sc.)
 - Start: Thursday, 15.10.09
- Projects (lab and research)
 - Freehand Modeling
 - cArtoonize yourself II
 - Start: Thursday, 15.10.09 16:30

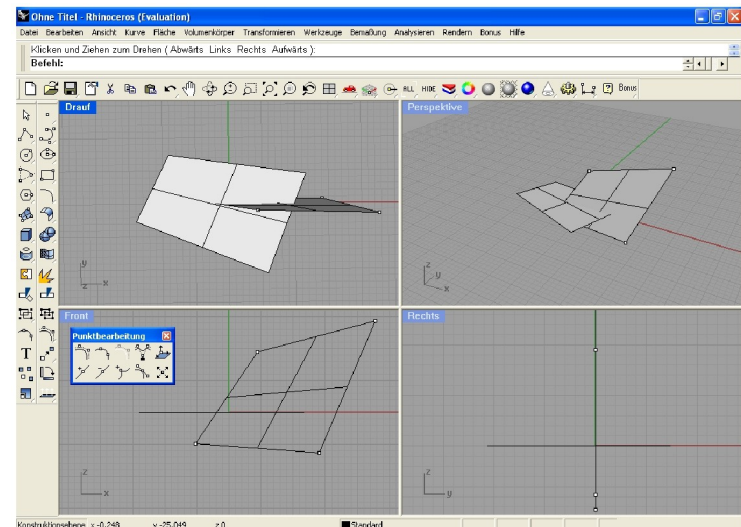
Freehand Modeling

Motivation:

Traditional 3D modelers allow for very precise control for creating digital shapes

BUT:

- these systems are not accessible to an artist who has not trained with them
- they lack physicality and directness
- hard to model organic shapes



Freehand Modeling

Project aims at:

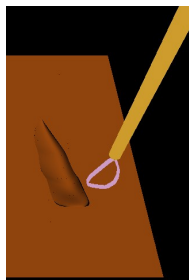
research alternative ways of forming three-dimensional objects

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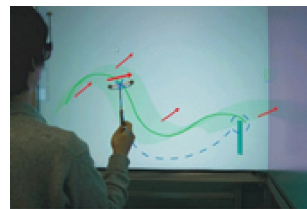
I. Solution from the user input perspective:

three dimensional modeling approaches based on direct input of the hands

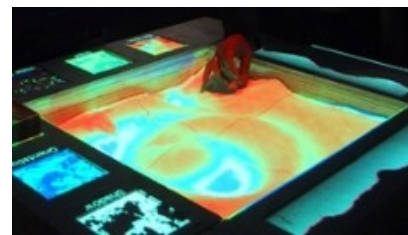
Some inspiration from existing systems and real life:



[WaWü08]



[wCjkiLC05]



[SandScape]



[Schkolne06]

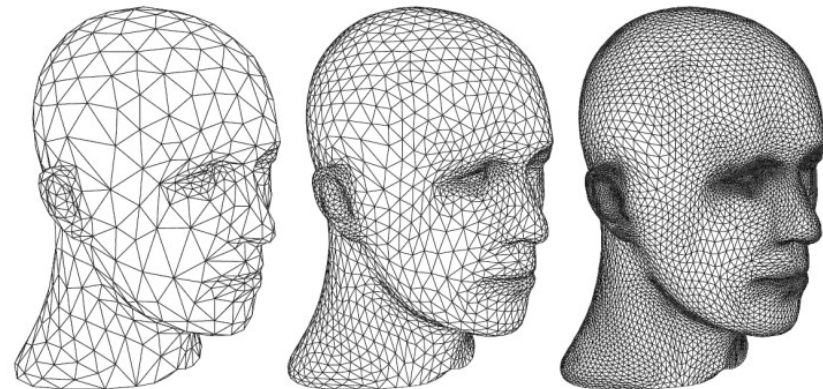
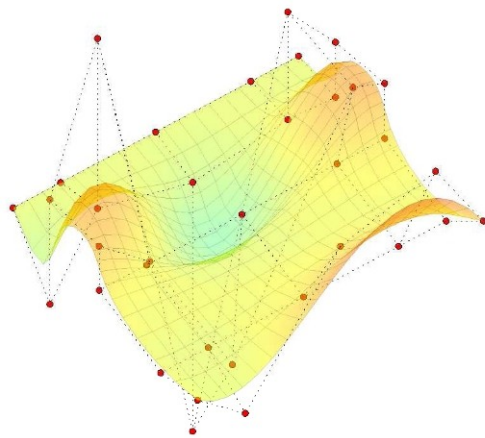


[digitus malus]

Freehand Modeling

II. Adressing the problem of smooth shapes:

the participants will gain strong knowledge of the theory and implementaion details of Subdivision- and NURBS-Surfaces



[SIGGRAPH00 Course Notes]

cArtoonize yourself II



Human

cArtoonize yourself II



Human



Camera

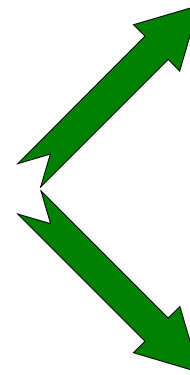
cArtoonize yourself II



Human



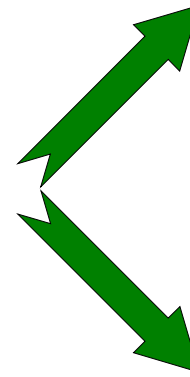
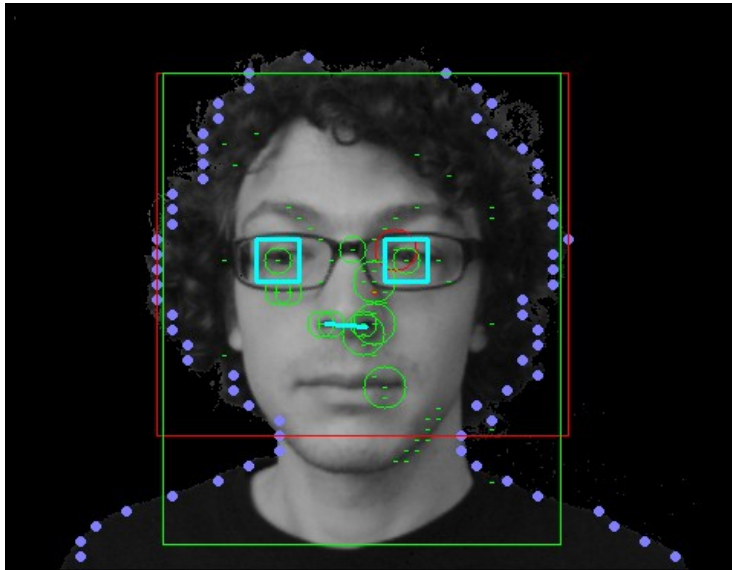
Camera



Character



cArtoonize yourself II



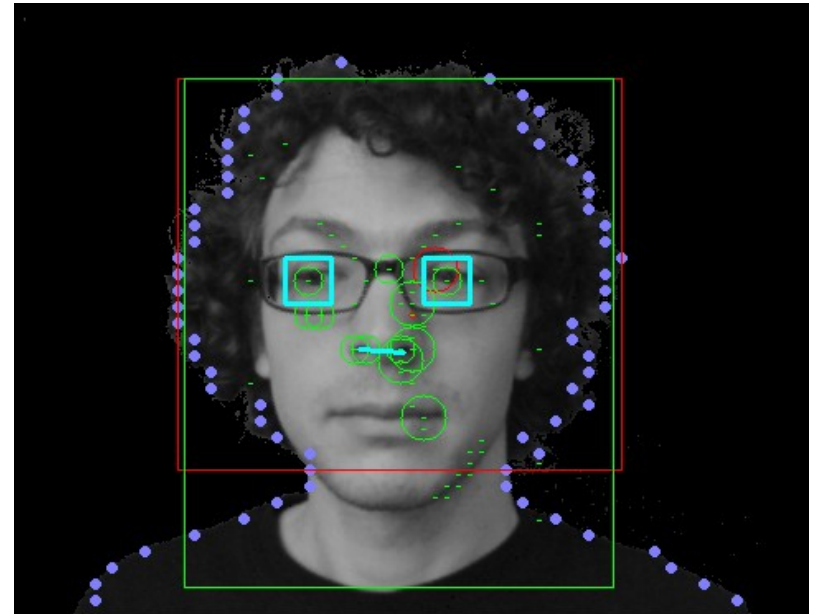
cArtoonize yourself II

Issues:

- Recognize and model expressions
- Mapping onto virtual characters
- Image processing
- Real-time noise elimination

Tools:

- Computer Vision (OpenCV)
- Non-Photorealistic Rendering
- OpenGL / CUDA / OpenCL



The end

*Hoping to see many of you on
Thursday 16.30*

Computer Facial Animation: A Survey in Data-Driven 3D
Facial Animation; Z. Deng, U. Neumann; 2008
ISBN 978-1-84628-906-4 (Print)
978-1-84628-907-1 (Online)

Computer Facial Animation
Frederick I. Parke, Keith Waters; 2008

The Illusion of Life: Disney Animation
Ollie Johnston, 1981

Recognizing Action Units for Facial Expression Analysis;
Y. Tian, T. Kanade, J. F. Cohn; 2001