Tuesday, August 26th, 2008, 18:00 hs

Room 3, Aretaios Building

Physics - based simulation of clothes and virtual try on

Prof. Nadia Magnenat - Thalmann

Abstract: Since early nineties, we have been working on the simulation of bodies and clothes. The main challenge has been to define individual bodies in a fast way and to dress them accordingly for mainly visualization purposes. Actually, the clothing industry is requiring automous processes to visualize clothes, before they are existing, from 2D patterns to 3D garment. The research is then twofold: 1) to be able to precisely define the patterns and assemble them in 3D and to animate them with great precision and 2) to offer a system where everyone can virtually try on any cloth with any body size. In this talk, we will show how we are defining physical parameters of cloths and our physically based simulation model, how we define interactive bodies, how we can simulate in real-time clothes. We will also speak about the EU project Haptex in which we have been working on the virtual touching of fabrics.

Wednesday, August 27th, 2008, 18:00 hs

Room 3, Aretaios Building

The Challenges in Real - time Crowd Simulation

Prof. Daniel Thalmann

For many years, this was a challenge to produce realistic virtual crowds for special effects in movies. Now, there is a new challenge: the production of real-time Virtual Crowds. Real-time crowds are necessary for games, VR systems for training and simulation and crowds in Augmented Reality applications. This requires to solve many problems: flexible animation of individuals, behavioural animation, real-time rendering, level of details, user interface for crowds, path planning, accessories. In this talk, we will present these techniques illustrated by examples in virtual cities and Cultural Heritage.

Thursday, August 28th, 2008, 18:00 hs

Room 3, Aretaios Building

Simulation of decors and life in various cultural heritage projects

Prof. Nadia Magnenat - Thalmann

We will present our work on the LIFEPLUS project which proposes an innovative 3D reconstruction of ancient frescos-paintings through the real-time revival of their fauna and flora, featuring groups of virtual animated characters with artificial life dramaturgical

behaviours, in an immersive AR environment. The goal of LIFEPLUS is to push the limits of current Augmented Reality (AR) technologies, exploring the processes of narrative design of fictional spaces (e.g. frescos-paintings) where visitors can experience a high degree of realistic interactive immersion. Based on a captured/real-time video of a real scene, the project is oriented in enhancing these scenes by allowing the possibility to render realistic 3D simulations of virtual flora and fauna (humans, animals and plants) in real-time. We will also discuss other European projects as the simulation of Ayia Sofia Mosque and the reconstruction of the Theater Aspendos, both in Turkey. We will also show the simulation of the famous terra cotta chinese soldiers that have been put to life again.

About the speakers:

Prof. Nadia Magnenat - Thalmann has pioneered research into virtual humans over the last 25 years. She obtained several Bachelor's and Master's degrees in various disciplines (Psychology, Biology and Chemistry) and a PhD in Quantum Physics from the University of Geneva. She founded the Swiss MIRALab, an internationally interdisciplinary lab composed of about 30 researchers. She is author and coauthor of more than 450 papers in the field of modeling virtual humans, interacting with them and living in augmented life. In 1997, she has been elected to the Swiss Academy of Technical Sciences, and has been nominated as a Swiss personality who has contributed to the advance of science in the 150 years history CDROM
produced by the Swiss Confederation Parliament.

Prof. Daniel Thalmann is Director of EPFL VRlab, Switzerland. He is a pioneer in Virtual Humans. He is coeditor-in-chief of the Journal of Computer Animation and Virtual Worlds. He has published numerous papers in Graphics, Animation, and VR. He is coauthor of several books including "Crowd Simulation" (2007). He received his PhD in CS from University of Geneva and an Honorary Doctorate from University Paul-Sabatier in Toulouse, France.