

# Travel Report SIGGRAPH 2001

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## Abstract

This is a short travel report of my trip to SIGGRAPH 2001 in Los Angeles, August 12-17, that was made possible by ARTES travel support.

## 1 General

SIGGRAPH (Special Interest Group Graphics, ACM) is held every year in USA in the summer. This year, the conference was situated in Los Angeles Convention Center, with between 20.000 and 30.000 visitors. SIGGRAPH is the largest conference in the world for computer graphics and the quality is regarded as exceptionally high. The quality of the accepted papers are generally extremely high. I went to the conference together with a couple of friends.

## 2 Conference

As always, the conference is divided into School, Papers, Panels, Sketches and Demonstrations. Every day there is parallel events from 8 am to 5 pm, so you have to carefully choose between the sweets. This year, hardware supported vertex shaders and pixel shaders and algorithms for those, were a hot topic. nVidia and ATI have both recently launched graphics hardware supporting programmable vertex- and pixel shaders. A new approximating mathematical model for light scattering in surfaces also received lots of attention, because it is able to produce very realistic images of for example milk and human skin, and still keep the complexity of the computations at reasonable levels. This model was used in the movie "Schrek", launched this year.

On the first two days, Sunday and Monday, the Eurographics Hardware Conference took place at SIGGRAPH headquarters - a hotel near by. One of my friends and I both had registered for that conference, which is much smaller than SIGGRAPH. In total, we were about 200 people. The focus is graphics hardware; algorithms in hardware, algorithms using the hardware, and future improvements.

## 3 Exhibition

In parallel with the conference, there is also a big exhibition. The exhibition usually takes place in the same building as the rest of the conference and is scheduled to take place the last three days of the conference. Usually there are exhibitors like Intel, Sun, nVidia, Industrial Light Magic, Pixar, Sony and several other famous companies in the graphics industry. This year, my biggest impression was from a small company presenting a flat screen 3D-TV, which fairly convincingly could generate true three dimensional images. For each pixel, it displayed eight images from different angles, in corresponding eight directions. An old technique typically used on

rulers or for toys. Intel demonstrated their Pentium 4, 2GHz processor. nVidia demonstrated their new Geforce3, and ATI launched the Radeon 8500 at the convention and held thorough presentations of the technical issues. ATI were invited to the Hardware Conference and held a very interesting talk with nice graphical demos where they also explained the algorithms and techniques behind what was shown.

## 4 Personal Reflections

Two receptions were held by the conference: the "Papers/Panels Reception" and the "Course Reception". The Course Reception was situated at Universal Studios, which of course was very nice. At the arrival, we had the chance to see the 3D-show "Terminator", which is a nice mix of real actors, 3D computer graphics and real smoke and drops of water. This certainly inspired the imagination.

One of the most important benefits of visiting SIGGRAPH is the chance to speak to interesting people. In particular I got the opportunity to speak to Henrik vann Jensen (Stanford) and a few days earlier I also bought his new book about photon mapping. Furthermore I had the pleasure to meet one of his students and discuss real-time simulation of smoke and fire. I also got to share the latest insights in ray tracing and real-time ray tracing. Real-time ray tracing is still too costly for anything but small scenes, and the main problem to solve for the future seems to be the memory bottleneck.

This year's trip to SIGGRAPH was very inspiring and gave birth to an idea that hopefully will result in a paper. The idea is about real-time shafts of light. The phenomenon can often be seen very clearly when sunlight shines down between clouds, and is caused by the fact that air scatters light. Simulating this effect can greatly increase the realism of outdoor scenes (but also indoor scenes in certain cases) and is therefore highly desirable for real-time rendering.