Nyhetsbrev, no 1, November 2009

Hemsida: http://www.sigrad.org
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Deadline för bidrag till nästa nummer: 15 Januari
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Innehåll

Några ord från redaktionen

Denna gång innehåller nyhetsbrevet bland annat en intressant rapport från Eurographics 2009 samt en påminnelse om SIGRAD 2009. Observera att deadline är förlängd och att det således finns tid att skicka in artiklar!

I övrigt så ges ett boktips till alla som vill ge sig i kast med shader-programmering i OpenGL. Avslutningsvis hittar ni pekare till några datorgrafikbloggar samt ”Tre länkar” från Ordföranden.

Anders Hast
Thomas Larsson

SIGRAD 2009

The Swedish Computer Graphics Society, SIGRAD, which actually is the Swedish Eurographics Chapter, will have its annual conference at the IT-University at Campus Lindholmen in **Göteborg 2009-11-26–27**. The theme for the conference is *Visualization and Design*. N.B! **The submission deadline has been extended to November 15, 2009.**

SIGRAD Education Workshop

The SIGRAD education workshop is organized approximately every other year. The latest instance was held October 12, 2007 at Mälardalen University in Västerås, see event report in Swedish available at
http://www.idt.mdh.se/personal/tla/Sigrad/EducationWorkshop2007/

The purpose of the workshop is to bring teachers, Ph.D. students, and other people with an interest for teaching computer graphics and visualization together to discuss teaching methods, course literature, graphics software, cooperation, etc. The next education workshop will probably be held during the autumn in 2010. The date and location will be announced soon.

Eurographics 2009

This is a short report from the conference Eurographics2009, which this year took place in Münich 31 March – 3 April. The conference was well organised (as it has always been when organized in Germany). The number of attendees was approximately 450, which was substantially more than in Crete. This means that the decrease last year was probably more due to the location than the shift in time for the conference.
The program consisted of tutorials, short papers, full papers, education, STARs (state-of-the-art-reports), areas, invited talks/keynotes and industrial sessions. In addition there was a small exhibit, where probably the most important part was the book exhibit with many interesting titles. Next year’s conference will be held in Norrköping in May 2010, which was announced in an excellent presentation by Anders Ynnerman.

I will not be able to give more than some fragments from the conference as there were many parallel activities and I were not able to attend everything. The document from the conference, including a CD, gives much information to study.

One important component of a conference like this is all the persons you meet. Among the persons I talked to were Vaclav Skala, Stefan Seipel, Wolfgang Leister, Rafael NN, Matt Cooper, Anders Ynnerman, Steve Cunningham, Judy Brown, Colleen Case, Gladimir Baranoski, Werner Hansmann, Beatrice Sousa-Santos, Isabel Navazo, Joaquim Jorge, Gitta Domik, Mikael Jern and some others that I forgot.

In the evening of Tuesday I attended a fellow meeting to elect new fellows of the association. I am not able to give details on this, but two new fellow were suggested and they were later approved by the EXC: Eduard Gröller and Nigel John. I can also say that to be suggested as a fellow you need 75% of the votes from the fellows (I was elected fellow in 1994).

Education

On Wednesday I attended two education sessions. The education program this year consisted of 11 submitted and accepted contributions and in addition to that a report from the education workshop held in the beginning of the conference.
Two of these papers were elected as best papers and will be published in Computer Graphics Forum. I listened to both. They were about
- how to teach quaternions
- how to write a scientific paper

The first of these were very good and I want to use that when coming home. The author used a 2x2 matrix representation of imaginary numbers and then extended that to 4x4 matrices giving a natural representation for quaternions with three imaginary numbers. Their software can be downloaded from http://facweb.cdm.depaul.edu/mcdonald/quat
The second award paper on writing scientific papers was not that new. Although well written and in that respect useful, it represents something that I think most schools have been teaching for decades.

Another education paper: Beatriz Sousa-Santos gave an overview of how they use empirical studies important in computer science, computer graphics and human-computer interaction. This is an important area that Sousa-Santos has been interested in for many years.
She used two main tasks in the investigations that the students were allowed to do:
- Simplification of polygon meshes
- Navigation tasks in virtual worlds

A short report was given from the education workshop that was held just before the conference. The theme for the workshop was ”Teaching computer graphics in context” with Colleen Case and Steve Cunningham as chairs. Topics that were discussed were: engineering design, architectural design, visualiszation, VR theater, science, animation, art&design, programming, and games.

Tips
During a conference you often get many tips, like this website for teaching shader programming: http://www.CGeducation.org
Information on the Eurographics Working Group on Data Visualization, can be found here http://www.iccas.de/egdv/index.html

State-of-the-art-reports
STAR, is a very useful part of the Eurographics events. One STAR this year was about Flow visualization. This STAR was useful and included a lot of math. More information can be found on:
http://graphics.ethz.ch/~peikert/
http://cs.swan.ac.uk/~csbob/

A few papers
In the session ”The joy of math and cartoon drawing” an interesting paper ”Complex Barycentric Coordinates with Applications to Planar Shape Deformation” was presented which was about manipulation of sketches using mathematics. Control points are used for the manipulation. More information including videos can be found through http://www.cs.technion.ac.il/~weber/Publications/

In the same session, Sykora et al. presented a method for LazyBrush, A supplementary video for the paper: Sykora, et al.: LazyBrush: Flexible Painting Tool for Hand-drawn Cartoons can be found on youtube: http://www.youtube.com/watch?v=ycD-xuQfCNU
This and other interesting examples and videos can be found on
http://gv2.cs.tcd.ie/sykora/

Predicting display visibility under dynamic changing lighting conditions
Tnuç Ozan Aydin, http://www.mpi-inf.mpg.de/~tunc/About_Me.html

Real-Time Dynamic Simulation of the Scattering in the Human Eye
Tobias Ritschel, et al. http://www.uni-koblenz.de/~ritschel/
http://www.mpi-inf.mpg.de/resources/hdr/TemporalGlare

Color correction for tone mapping
Radoslaw Mantiuk et al., http://zgk.wi.ps.pl/color_correction/

Johnson Chuang, Daniel Weiskopf, and Torsten Möller, Energy Aware Color Sets,
http://www.sfu.ca/~jca54/

Keynote
Panelling Architectural free form surfaces. Helmut Pottman gave an interesting presentation of free form surfaces for architecture. Many pictures can be found through:
http://www.dmg.tuwien.ac.at/pottmann/

The presentation included any aspects including steps in the process: Start with a coarse panel, ask architect, Finer mesh after that, Final panel, Colour included to indicate the material, Supporting beam layout (substructure), Optimisation nodes
Examples from practice: http://www.yasarchitecture.com/

Best paper award
1. Complex Barycentric Coordinates with Applications to Planar Shape Deformation, Ofir Weber et al.
2. Recoloring Image appearance Exploration by Model Based Navigation, Lior Shapira et al.
3. Break dance: Motion compression using Principal geodesic analysis, Maxime Tournier et al.

Book store
There were a lot of useful books on shelf in various topics.
Probably the most useful one was:
Alexandru C. Telea, Data Visualization: Principles and Practice (510 pages).
The book gives an overview of the different techniques in a good way and it is not attached to any software as for instance the vtk book is. There is a text describing the book (from the homepage of the author):
”This book provides an introduction to data visualization from a practical perspective. The book addresses undergraduate and graduate students as well as professionals interested in using visualization to explore and understand their data in a range of application fields, including computational flow dynamics, engineering sciences, and medical imaging. Topics covered include: scalar, vector, tensor, image, volume, and information visualization, covered by examples and sample code.”

Personal experiences
Many good ideas and pieces of knowledge make a conference like this very fruitful. I established some new contacts and have many things to take care of when coming home. Intensive discussions, listening to many talks and too little sleep makes you (me) tired and I will need at least one night of good sleep to be back in normal condition.

Lars Kjelldahl

Lättillgänglig bok om shader-programmering

Boken Graphics Shaders: Theory and Practice av Mike Bailey och Steve Cunningham från AK Peters Ltd, 2009, är ett välkommet tillskott på datorgrafikbokhyllan, framförallt för personer som nyligen påbörjat sin resa inom shader-programmering, men även som en lättillgänglig referens för andra mer erfarna programmerare inom datorgrafik. Denna textbok kan även fungera utmärkt som kurslitteratur för studenter i inledande datorgrafikkurser där läraren lägger tonvikten på praktisk utveckling av shaders.

I bokens kapitel introduceras förväntade områden som GLSL, Lighting, Vertex Shaders, Fragment Shaders, Texture Mapping och Noise. Mot slutet av boken breddas innehållet

något genom att man även tar upp hur shaders kan utnyttjas för bildbehandling och vetenskaplig visualisering. Endast ett kortfattat kapitel ägnas åt det senaste tillskottet på shader-himlen, dvs. geometry shaders. Mjukvaruverktyget "glman" används boken igenom för att förenkla för läsaren att komma igång med programmeringen samt göra det lättare att iterativt experimentera med shader-kod.

Boken är lite väl tunn vad det gäller presentation av relevant teori för olika belysningsmodeller. På teoriområdet finns det betydligt bättre och mer omfattande datorgrafikböcker. En mer passande titel på boken skulle därför ha varit Graphics Shaders: A Practical Approach. Eftersom GLSL vidareutvecklas i snabb takt, vilket inte minst OpenGL-versionerna 3.0-3.2 vittnar om, så känns boken också till viss del föråldrad. Enligt min mening kräver bokens upplägg att en ny uppdaterad upplaga ges ut ungefär vartannat år. För mer information och kompletterande material till boken, se http://cgeducation.org/ShadersBook/

Thomas Larsson

Computer Graphics Blogs

Blogs may be a nice place for personal informal discussions of interesting technicalities related to computer graphics. I have come across a few such blogs. Here's the list:

Pete Shirley's Graphics Blog - Thoughts on computer graphics in general and rendering in particular:
http://psgraphics.blogspot.com/

Christer Ericson's realtimecollisiondetection.net - the blog:
http://realtimecollisiondetection.net/blog/

Real-Time Rendering Blog by Tomas Akenine-Möller, Eric Haines, and Naty Hoffman:
http://www.realtimerendering.com/blog/

Thomas Larsson

Tre Länkar

TED är en organisation som för samman framstående personer inom Technology, Entertainment, Design och låter dem presentera sitt arbete och sina idéer på årliga konferenser. Mottot är "Ideas worth spreading" och därmed gör de också video av alla dessa presentationer fritt tillgängligt på sin webbplats http://www.ted.com/.

Tre videos från årets konferens fångade mitt intresse:

Pattie Maes från MIT Media Lab med doktorander presenterar "The Sixth Sense", en kombination av bärbar projektor, videokamera och mobiltelefon som kan känna igen objekt i omgivningen, projicera information på dem och låter användaren interagera med

dem med fingerrörelser:
http://www.ted.com/index.php/talks/pattie_maes_demos_the_sixth_sense.html

David Merrill, också från MIT Media Lab, presenterar "Siftables", datoriserade byggklossar med en liten skärm och sensorer, som låter användaren interagera genom att placera klossarna i närheten av varandra och luta på dem:
http://www.ted.com/talks/david_merrill_demos_siftables_the_smart_blocks.html

Ed Ulbrich från Digital Domain beskriver hur hans arbetsgrupp framställde ett helt naturtroget datorgenererat ansikte för filmen "The Curious Case of Benjamin Button":
http://www.ted.com/talks/ed_ulbrich_shows_how_benjamin_button_got_his_face.html

Kai-Mikael Jää-Aro