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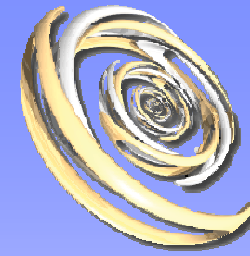
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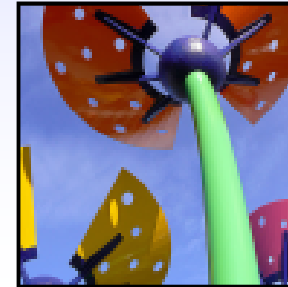


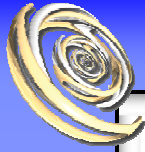
Computer Graphics  
International

and

Computational  
Aesthetics

2009





# Computer Graphics Int'l 2009 TUESDAY

## Tutorial: Seeing in 3D

### Level: Beginner

Most people, even technical draftsmen, designers and computer graphics programmers, find it very difficult to visualise 3D shapes well enough to reason about them. This course demonstrates the problem and takes attendees through a series of exercises that help them acquire this important practical skill.

“Stand a cube on its corner. What is the shape of a horizontal cross-section taken at half the height of this object?” About four percent of human beings can reason about 3D space well enough to answer this question easily and with confidence. Most of us enter a state of panic when confronted by 3D problems. Yet it is possible to train yourself to think and visualize in 3D. This course helps attendees start thinking in 3D. Once they have the basic principles, they can develop the skill independently.

### Prerequisites

Familiarity with some basic geometric ideas (for example, two planes meet in a straight line). Also helpful: awareness of how to find distances with Pythagoras’ theorem, but this is used for only a few exercises, and the course can be understood without mathematics.

### Intended Audience

Graphic artists, engineers, designers, computer graphics programmers, and students interested in graphics, drawing, or sculpture.

### Instructor Bio

*Geoff Wyvill, University of Otago*

Well known in SIGGRAPH circles, Geoff Wyvill has contributed technical presentations, artworks, and animation to many conferences. He is director of computer graphics research at the University of Otago and a director of Animation Research Limited, which makes commercial animation and animation software for sports. He has a BA in physics from Oxford University and an MSc and PhD in computer science from Bradford University. Over many years, he has encouraged scientists to develop artistic pursuits and artists to learn science. He has published over 100 technical articles and papers, and given numerous invited talks and courses.

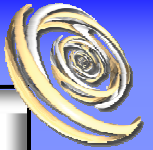
**Runs from 9:15 to 16:30, Lunch at 12:15**

### CGI Welcome Reception at 19:00

Harbour Room, hors d’oeuvres will be served.

## Schedule Overview

	Tues	Weds	Thurs	Fri	Sat
08:45		CGI Opening	CAe Opening		
09:15		CGI Keynote	Shared Keynote	Shared Keynote	CAe Papers
09:45	Tutorial				
10:15	Coffee	CGI Full Papers	CGI Short Papers	CGI Papers	CAe Papers
10:45			CGI Papers	CAe Papers	CAe Keynote
11:15	Tutorial				
11:45					CAe Closing
12:15	Lunch	Lunch	Lunch	Lunch	
13:00					Lunch
13:30	Tutorial	CGI Full Papers	CGI Short Papers	CGI Papers	CAe Papers
14:00			CGI Papers	CAe Papers	Art Display
14:30	Coffee				
15:00		CGI Full Papers	CGI Short Papers	CGI Paper	CAe Papers
15:30	Tutorial				
16:00					CGI Closing
16:30					Art Event
17:00					
17:30					
18:00					
18:30		CGI/CAe Reception	Art Display	Joint Conference Banquet	Art Performance
19:00	CGI Reception (nibbles)				
19:30					
20:00					
20:30		Art Show			
21:00					



## CGI Organization

### Conference Chairs

Brian Wyvill, University of Victoria

Nadia Magnenat-Thalmann (MIRALab, Switzerland)

### Program Chair

Geoff Wyvill, University of Otago

### Webmaster

Erwin de Groot

## CAe Organization

### Conference Chair

Neil Dodgson University of Cambridge, UK

### Local Organization Chair

Brian Wyvill, University of Victoria, Canada

### Program Chairs, Technical Program

Peter Hall, University of Bath, UK

Oliver Deussen, University of Konstanz, Germany

### Program Chairs, Arts Program

Steve Gibson, University of Victoria, Canada

Gerry Hushlak, University of Calgary, Canada

Jeffrey Shaw, University of New South Wales, Australia

### Publicity Chair

Tobias Isenberg, University of Groningen, The Netherlands

### Administration (CAe and CGI)

Shawna Wyvill, Victoria, Canada

**8:45 — 9:15** CGI Opening

**9:15 — 10:40** CGI Keynote Speaker

Gavin Miller, Adobe

**10:45 — 12:15** Papers

**Incorporating object-centered sampling and Delaunay tetrahedrization for visual hull reconstruction** *Xin Liu, Marina L. Gavrilova, Jon Rokne*

**Creating MPU Implicit Surfaces from Unoriented Point Sets with Orientation Inference** *Yi-Ling Chen, Shang-Hong Lai*

**Variational tetrahedral mesh generation from discrete volume data** *J. Dardenne, S. Valette, N. Siauve, N. Burais, R. Prost*

**Streaming Surface Sampling using Gaussian Epsilon-nets** *Pablo Diaz-Gutierrez, Jonas Bösch, Renato Pajarola, M. Gopi*

**Maximal Independent Set Graph Partitions for Representations of Body-Centered Cubic Lattices** *Kenny Erleben*

**12:30 — 13:50** Lunch

**14:00 — 15:30** Papers

**Dynamic Collage - A New Method for Browsing Massive Photo Collections** *Yingzhen Yang, Yichen Wei, Chunxiao Liu, Qunsheng Peng, Yasuyuki Matsushita*

**Automatic View Selection through Depth-Based View Stability Analysis** *Pere-Pau Vázquez*

**An information theoretic approach to camera control for crowded scenes** *Cagatay Turkay, Emre Koc, Selim Balcisoy*

**Pick-by-Vision: Augmented Reality supported Order Picking** *Rupert Reif, Willibald A. Günthner*

**Realistic Real-Time Sound Re-Synthesis and Processing for Interactive Virtual Worlds** *Fernando Trebien, Manuel M. Oliveira*

**16:00 — 17:30** Papers

**Fragment Based Responsive Character Motion for Interactive Games** *Xi Cheng, Gengdai Liu, Zhigeng Pan, Bing Tang*

**Real-time falling animation with active and protective responses** *Zhigeng Pan1, Xi Cheng, Wenzhi Chen, Gengdai Liu1, Bing Tang*

**Efficient motion data indexing and retrieval with local similarity measure of motion strings** *Shuangyuan Wu, Shihong Xia, Zhaoqi Wang, Chunpeng Li*

**Motion Constraint** *Daniel Raunhardt, Ronan Boulc*

**18:30-20:00** CAe / CGI Opening Reception

Ballroom Foyer, hors d'oeuvres will be served.

**20:00-21:30** Art Show

Ascot room



## Computer Graphics Int'l 2009 THURSDAY

### 9:15 — 10:40 Shared Keynote Speaker

Carlo H. Séquin, UC Berkeley

### 10:45 — 12:15 Papers

**Fluid-based Hatching for Tone Mapping in Line Illustrations** Afonso Paiva, Emilio Vital Brazil, Fabiano Petronetto, Mario Costa Sousa

**An extended GPU radiosity solver including diffuse and specular reflection and transmission** Günter Wallner

**High-Quality Brightness Enhancement Functions for Real-Time Reverse Tone Mapping** Rafael Pacheco Kovaleski, Manuel M. Oliveira

**Towards Multi-perspective Rasterization** Xuan Yu, Jingyi Yu, Leonard McMillan

**Fast Real-time Caustics from Height Fields** Cem Yuksel, John Keyser

### 12:30 — 13:50 Lunch with Speaker

Werner Purgathofer, Vienna University of Technology

### 14:00 — 15:30 Papers

**Compact Real-Time Modeling of Seated Humans by Video Sprite Sequence Quantization** Chun Jia, Voicu Popescu

**Feature-Rich Distance-Based Terrain Synthesis** Brennan Rusnell, David Mould, Mark Eramian

**Feature Enhancement by Volumetric Unsharp Masking** Yubo Tao, Hai Lin, Hujun Bao, Feng Dong, Gordon Clapworthy

**Adaptive Smooth Surface Fitting with Manifolds** Cindy Grimm, Tao Ju, Ly Phan, John Hughes

**Dual-RBF based Surface Reconstruction** Yuxu Lin, Chun Chen, Mingli Song, Zicheng Liu

### 16:00 — 17:30 Papers

**Mr-SDM: a Novel Statistical Deformable Model for Object Deformation** Qizhen He, Horace H. S. Ip, Jun Feng And Xianbin Cao

**Generating Anatomical Substructures for Physically-Based Facial Animation Part 1: A Methodology for Skull Fitting** Olusola Aina

**Interactive skeletonization of intensity volumes** Sasakthi S. Abeyasinghe, Tao Ju

**Light Source Estimation of Outdoor Scenes for Mixed Reality** Yanli Liu, Xueying Qin, Songhua Xu, Eihachiro Nakamae, Qunsheng Peng

### 19:30-21:30 Banquet at University of Victoria

Transfer at 18:00 to UVic Faculty Club

Speaker: Andrew Glassner

Dinner Entertainment: The Jan Stirling Jazz Trio

## Computational Aesthetics 2009 ART PRESENTATIONS



### Art Show: Computer Installations

Opening: Wednesday 18.30-20.00 — Chelsea/Derby room

Running: Thursday and Friday daytime

1. **Henrique Roscoe** *hol*
2. **Benjamin Forster** *Drawing Machine*
3. **Elif Ayiter** *Anatomia*
4. **Jerry Hushlak, Jeffrey Boyd, Christian Jacob, Scott Novakowski** *Intelligent Fans*

### Art Show: Print

Opening: Wednesday, 18:30-20:00, Foyer

Running: Thursday and Friday, daytimes

1. **Murat Germen** *Chronophotography*
2. **The Luxury of Protest c/o Peter Crnokrak** *A\_B\_peace & terror etc.*
3. **Penousal Machado and Juan Romero** *Losing System Signature*

### Artist Presentations

Wednesday 20:00-22:00, Ascot Room

Each artist gets 20 minutes.

1. **Mehrdad Garousi** *The Dancing Flowers*
2. **Florian Gruber, Nikolaus Hartmann, Thomas Lorenz and Christina Simmel** *Stroem — an audiovisual installation*
3. **Fernando Graca Penousal Machado** *Informal Stains: gestural painting*
4. **Jinsook Kim** *Motion Gestalt Grouping Principles for the Creative Process of Motion Graphics*
5. **Andres Wanner** *The Art Machine*

### Screenings

Fri. 17.00-18.00 - Ascot Room

The Creative Process of Motion Graphics

1. **Anabela Costa** *VORTEX ROOM*
2. **Julie Andreyev** *Animal Lover*
3. **Seung-Chan Yang** *EXPECTED OR UNEXPECTED*
4. **Jim Bizzocchi** *Winterscape*

### Performance

Friday, 20:00-0:00, Ascot Room

**Steve Gibson, Stfan Müller Arisona, Justin Love, Randy Adams, and Jim Olson** *Exploding, Plastic & Inevitable Redux*



## Computational Aesthetics 2009 SATURDAY

### 8:45 — 10:15 *Automated Synthesis*

**Automated Landscape Painting in the Style of Bob Ross** *Craig Kaplan, S. Alex Kalaidjian, and Stephen Mann*

**Aesthetic Placement of Points Using Generalized Lloyd Relaxation** *Oliver Deussen*

### 10:45 — 11:45 *Aesthetics*

**Distinctive Parameters of Expressive Motion** *Lyn Bartram and Ai Nakatani*

**Aesthetic Appraisal of Art - From Eye Movements to Computers** *Christian Wallraven*

### 11:45 — 12:45 *CAe Keynote Speaker*

Sheelagh Carpendale, University of Calgary

### 12:45 — 13:00 *CAe Closing*

### 13:00 — 14:00 *Lunch*

## Computational Aesthetics 2009 THURSDAY



### 8:45 — 9:15 *CAe Opening*

### 9:15 — 10:40 *Shared Keynote Speaker*

Carlo H. Séquin, UC Berkeley

### 10:45 — 12:15 *Using Curves*

**Magnetic Curves: Curvature-Controlled Aesthetic Curves Using Magnetic Fields** *Ling Xu and David Mould*

**A Painterly Rendering on Stroke Profile and Database** *SangHyun Seo, JinWan Par, and KyungHyun Yoon*

**Generalized Descriptions for the Procedural Modeling of Ancient East Asian Buildings** *Soon Tee Teoh*

### 12:30 — 13:50 *Lunch with Speaker*

Werner Purgathofer, Vienna University of Technology

### 14:00 — 15:30 *Depicting the Natural World*

**Controlling Color Regions of Leaves with Painting Techniques for Landscape Arts** *Yasuhiro Akagi, Mitsunori Kataama, and Katsuhiko Kitajima*

**Automatic Views of Natural Scenes** *Margarita Bratkova, William B. Thompson, and Peter Shirley*

**Style Nodes for Hierarchical Tree-Based Implicit Surface Modelling** *Pauline Jepp, Bruno Rodrigues De Araujo, Joaquim Jorge, Brian Wyvill, and Mario Costa Sousa*

### 16:00 — 17:30 *Aesthetic Analyses*

**Comparing the Readability of Graph Layouts using Eyetracking and Task-oriented Analysis** *Stephan Diehl, Mathias Pohl, and Markus Schmitt*

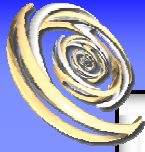
**Image Statistics for Clustering Paintings According to Their Visual Appearance** *Christian Wallraven*

### 19:30-21:30 *Banquet at University of Victoria*

Transfer at 18:00 to UVic Faculty Club

Speaker: Andrew Glassner

Dinner Entertainment: The Jan Stirling Jazz Trio



## Computer Graphics Int'l 2009 FRIDAY

### 9:15 — 10:40 Shared Keynote Speaker

Andrew Fitzgibbon, Microsoft Research Cambridge

### 10:45 — 12:15 Papers

**Inherent limitations on specular highlight analysis** Lorcán Mac Manus, Masa-hiro Iwasaki, Katsuhiro Kanamori, Satoshi Sato, Neil A. Dodgson

**Automatic Registration of Multiple Range Images Based on Cycle Space** Fei Hou, Yue Qi, Xukun Shen, Shen Yang, Qingping Zhao

**Salient Spectral Geometric Features for Shape Matching and Retrieval** Jiayi Hu, Jing Hua

**An Efficient Two Steps Algorithm for Wide Baseline Image Matching** Cosmin Ancuti, Codruta Ormiana Ancuti, Philippe Bekaert

### 12:30 — 13:20 Lunch

### 13:30 — 15:00 Papers

**Physically Based Simulation of Thin-shell Objects Burning** Shigang Liu, Qiguang Liu, Tai An, Jizhou Sun, Qunsheng Peng

**Real-Time Multi-Band Synthesis of Ocean Water with New Iterative Up-Sampling Technique** E. Miandji, M. H. Sargazi Moghadam, Faramarz F. Samavati, M. Emadi

**Simulation of Swirling Bubbly Water Using Bubble Particles** Ho-Young Lee, Jeong-Mo Hong, Chang-Hun Kim

**Interchangeable SPH and Level set Method in Multiphase Fluid** Ho-Young Lee, Jeong-Mo Hong, Chang-Hun Kim

**A Fast Method for Simulating Destruction and the Generated Dust and Debris** Takashi Imagire, Henry Johan, Tomoyuki Nishita

### 15:30 — 16:30 Shared Keynote Speaker

Andrew Pearce

### 16:30-16:45 CGI Closing

### 17:00 — 18:00 Art event: Screenings

### 20:00 — 24:00 Art event: Performance

CGI delegates are invited to attend the Computational Aesthetics art events this evening

## Computational Aesthetics 2009 FRIDAY



### 9:15 — 10:40 Shared Keynote Speaker

Andrew Fitzgibbon, Microsoft Research Cambridge

### 10:45 — 12:15 Using and Modelling Cameras

**CubeCam: A Screen-Space Camera Manipulation Tool** Cindy Grimm, Nisha Sudarsanam Singh, and Karan Singh

**ARTcams: Attributed Rational Tensor Cameras** Chuan Li, Peter Hall, and Phillip Willis

**Consistent Scene Illumination using a Chromatic Flash** Jan Kautz and Min H. Kim

### 12:30 — 13:20 Lunch

### 14:00 — 15:30 Image Manipulation

**Movie Posters from Video by Example** Stephen Brooks

**Adding Lighting and Viewing Effects to Digital Images** Cindy Grimm

**Contrast Brushes: Direct, Local, Contrast Adjustment** Neil Dodgson, Mark Grundland, and Rahul Vohra

### 15:30 — 16:30 Shared Keynote Speaker

Andrew Pearce

### 17:00 — 18:00 Art event: Screenings

### 20:00 — 24:00 Art event: Performance