



vizNET/Research Computing/ESNW Seminar
1400-1500 Monday 22 September 2008

New Techniques for Acquiring, Rendering, and Displaying Human Performances
Paul Debevec University of Southern California Institute for Creative Technologies

This presentation will present recent work in the USC ICT graphics laboratory on acquiring, rendering and displaying photoreal models of people, objects and dynamic performances. It will begin with an overview of image-based lighting techniques for photorealistic compositing and radiance acquisition techniques (which have been used to create realistic digital actors in films such as Spiderman 2 and Superman Returns). It will present our first Light Stage 6 project combining image-based lighting with free-viewpoint video to capture and render full-body performances, as well as a new 3D face scanning process that captures high-resolution facial geometry and reflectance from a small number of photographs. It will conclude with a new 3D display that leverages 5,000 frames per second video projection to show autostereoscopic, interactive 3D imagery to any number of viewers simultaneously.

vizNET/Research Computing/ESNW Seminar
1400-1500 Friday 17 October 2008

The evolution of an imaging system: Photographing weird objects for fun and profit!
James Paterson, Chief Technology Officer of Eykono Technologies Ltd

Dr James Paterson, Chief Technology Officer of Eykono Technologies Ltd and formerly Oxford University Robotics Dept, will talk about his research into 3D imaging and how it both led to, and was led by, the spinning out of Eykono from the University. James will show how continued themes of camera localization and photometric / geometric reconstruction run throughout this work and will talk about the transition from research lab to commercial entity. A selection of 3D imaging systems will be presented including work on imaging chronic wounds, textures for video games, Mayan temples, fossils, antique cars and other cultural artefacts. James will also attempt a live demo with Eykono's latest prototype system!

vizNET/Research Computing/ESNW Seminar
1400-1500 Friday 7 November 2008

The HECToR National Supercomputing Service and the Research Community
Jon Gibson, The Numerical Algorithms Group Ltd.

I will discuss the HECToR service and what it offers the research community in the UK. As well as describing the hardware, I will explain the application process and the support and training available to users. I will provide specific examples of how The Numerical Algorithms Group (NAG), who provide the Computational Science and Engineering (CSE) support for HECToR, are working with users to improve the performance of their codes. I will particularly focus on the project which I am currently working on, 'Cloud and Aerial Research on Massively-Parallel Architectures', in which I am improving the functionality and performance of the widely-used Met Office LEM code and parallelising a second code, called ACPIM, to run on HECToR. This work is being conducted in conjunction with Dr Paul Atkinson of the University of Manchester and Dr Alan Godwin of the University of Leeds.

vizNET/Research Computing/ESNW Seminar
1300-1400 Thursday 20 November 2008

Missing Bricks and Dead Pixels
Keith Markson, MDA Systems

The aim of this talk is to give an overview of the image processing work at MDA and show how image processing links with other system elements. One example will be the monitoring of movements on a building site, and the way in which military technology can be transferred to civil applications. Another point that will be discussed is influence of image processing on the requirements for the camera sensor.

vizNET/Research Computing/ESNW Seminar
1400-1500 Monday 1 December 2008

Running with dinosaurs: fossils, physics and physiology
Bill Sellers, Integrative Vertebrate, Faculty of Life Sciences, University of Manchester

Traditional techniques for reconstructing past life (dinosaurs) involve complex anatomical models or step-by-step animation techniques. These techniques rely on a good knowledge of the anatomy and the range of motion of individual joints and muscles. These are mixed with a great deal of artistic skill and often produce visually pleasing results. However, using these approaches it is impossible to answer the question of whether the animal could actually have run as portrayed. The movement used are essentially possible but in all likelihood of the animal had actually tried to move like this it would have fallen over. One has to imagine the physics of the animal and the forces that would be acting on it as it moves. These are difficult to answer as it includes both Newtonian physics and mass spectrometry. This talk will describe how we have used a computer model of the musculoskeletal system of our target vertebrate fossil. The talk will describe how we have reconstructed a great segment, and the muscles and tendons are force generators that power the movement. The end result is the generation of a model that is anatomically, physiologically and physically possible. At the same time the plot can represent an objective estimate of the most energetically efficient gait, or alternatively the fastest gait possible for a given animal. <http://www.computationalbiology.com>

ACM SIGGRAPH Manchester Professional Chapter
<http://manchester.siggraph.org/>
2008-2009 Recorded Seminars

Using www.agsc.ja.net (Access Grid Support Centre) recording and annotation systems; sponsored by vizNET

vizNET/Research Computing/ESNW Seminar
1400-1500 Friday 12 December 2008

VisualComplexity: A visual exploration on mapping complex networks

VisualComplexity.com (VC) is a unified resource space for anyone interested in the visualization of complex networks. With over 600 projects, the goal is to leverage a critical understanding of different visualization methods across a series of disciplines, as diverse as Biology, Social Networks or the World Wide Web. This talk will leverage the existing pool of knowledge from VC to convey a current portrait of network visualization. It will illustrate some of its current trends and representation methods, and explore the reasons behind the recent outbreak.

vizNET/Research Computing/ESNW Seminar
1400-1500 Friday 19 December 2008

R&D in Film Production
Marta Przewoz, Framestore

The role of research and development in film production has changed as the visual effects industry has matured. Whereas in the early years programmers were involved in every stage of effects production (from writing the renderer to building the film render) we now concentrate on much more specialised portions of the production. This talk outlines several areas of active development, and describes the sort of problems we still need to solve.

vizNET/Research Computing/ESNW Seminar
1400-1500 Friday 30 January 2009

Colour Appearance Modelling: Predicting how we perceive colours
Time Kuehni, University of Bristol

Colour in Computer Graphics is often assumed to be a trivial problem. Seen from a physical or photometric point of view this might be acceptable as it is possible to describe the energy transfer of colour using physically observable quantities: the vast amount of parameters our visual system is capable of processing. At the moment picture for the entire complex processes the description, compression, change of signal encoding or feedback loops are taking place starting from the photoreceptors towards the visual cortex. Understandably, describing the visual system in a model is also a complex task. Colour appearance modelling (CAM) offers a solution by describing the major processes occurring in the Human Visual System (HVS) by taking into account many factors which have been reported both by neuroscientific research as well as psychological studies. In this presentation we are going to talk about the use of Colour Appearance Models in Computer Graphics and adjacent fields including the current state of the art. We will discuss their applicability as well as their limitations when using them as a tool to give a more realistic description of colour appearance.

vizNET/Research Computing/ESNW Seminar
1200-1300 Friday 24 April 2009

Avizo Roadmap - Visualization Software from Mercury Computer Systems Inc.

Jason Phillips, Account Manager - Northern Europe Visualization Sciences Group, Mercury Computer Systems, will be presenting a roadmap of the new family of Avizo visualization products. The Avizo Roadmap includes speculative routes beyond 2013 onwards to 2020: ideas include not just a new general purpose supercomputer but also the opportunity to deploy specialist machines (Graphics cards??). www.mercurysystems.com

vizNET/Research Computing/ESNW Seminar
1500-1600 Friday 8 May 2009

CRAY Roadmap - CRAY Inc. The Supercomputer Company

Andy Mason - CRAY Inc., will be presenting current installation examples, the HECToR national supercomputer upgrade route to phase 2 (400TFlops) and phase 3 (Petaflop); as well as a roadmap of the new family of products. The RLIK roadmap includes speculative routes beyond 2013 onwards to 2020: ideas include not just a new general purpose supercomputer but also the opportunity to deploy specialist machines (Graphics cards??). www.cray.com

vizNET/Research Computing/ESNW Seminar
1500-1600 Friday 13 March 2009

SIGGRAPH Animation Session

We will be presenting some of the best SIGGRAPH animation video clips from the 2008 DVD collection. This covers a unique set of animation from professional houses to amateur enthusiasts all of whom have excelled in excellence. We will be available to help the event and we will donate £5 per person who turns up to Comic Relief, Home and Away (Friday 13 March 2009).

Two special visualization days, both held in conjunction with the UK AVS+Uniras User Group (UAUUG): Materials Science Visualization Day 25th September 2008 and a Generic Visualization Day 19th February 2009. Extra seminar from Bob Pette, Vice President, Silicon Graphics Visualization Group, "PowerVue and Other topics" 1st December 2008

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