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Current Trends in Computer Graphics
Werner Purgathofer and Robert F. Tobler



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In this paper we give an overview of the current research trends and explore the challenges in several subfields of the scientific discipline of computer graphics: interactive and photorealistic rendering, scientific and information visualization, and visual analytics. Five challenges are extracted that play a role in each of these areas: scalability, semantics, fusion, interaction, acquisition. Of course, not all of these issues are disjoint to each other, however the chosen structure allows for a easy to follow overview of the concrete future challenges.

Key words: computer graphics, rendering, visualization, challenges, computer vision.

2000 Mathematics Subject Classification: 68-02, 68U05.

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New Geometries for 3D Laser Sensors with Projection Discrimination (II)

Mihai Bulea



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Laser sensors are widely used for precision measurement of the distances. They all include one or more laser sources and one or more cameras and, using triangulation, they provide a precise measurement of the distance between the sensor (laser(s) plus camera(s)) and the target. The principle is simple: the laser creates a light spot on the target, while the camera takes a snapshot of the spot. Measuring the position of the spot projection in the image, the distance to the target can be measured. The first part of this paper presented already a set of new geometries for laser sensors, so that the location of each laser plane projection is uniquely determined in the projection plane [1]. We continue the presentation and evaluation of the new geometries for 3D sensors in this second part of the paper, which will focus on multi-beam and multi-planar 3D laser sensor geometries.

Key words: laser sensors, multi-point sensors, geometries, camera.

2010 Mathematics Subject Classification: 51M15, 74P20.

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Mach Speed Processing. Dynamic Cloning of Software Functionality in Hardware

Cosmin Popa and Andrei Stan



[Full text](#)

The hardware industry reached an obvious stalemate regarding speed and efficiency of one chip processors. This started a widespread investigation on how to gain the technology of increasing the processor capacity in providing an expected result. Knowing the fact that on every processor software is executing, this paper highlights the possibility of speeding up processor reaction only relying on the executing software. This implies the creation of an analytic and statistical system which will synthesize the information acquired from the processor into a co-processor. The new component will have the same functionality as the executing software but will provide a quicker response.

Key words: Profiling tools, FPGA, embedded systems, reliability, speed-up, co-design.

2000 Mathematics Subject Classification: 68N19, 68P99.

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Using Html Structure in Proactive Phishing Detection

Marius Nicolae Tibeică



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Phishing can no longer be considered a new and emerging phenomenon that is easy to detect with basic filters. Fake websites impersonating national or international institutions are easily created using advanced methods that trick the traditional detection filters (JavaScript encoding, images that replace words, flash objects, frames, and even customized website distribution using GeoIP). Also targeted phishing (containing personal information in order to appear genuine) attacks increased in numbers in the last months, as information about people can be easily accessed on social networks or blogs. Bearing this in mind, the present paper tries to deal with the current problem and offer a possible solution for protection at browser level by providing an automated method of detecting phishing. The proposed method is grounded on the structure of the HTML and not the visible content. Our algorithm consists in creating signatures based on the tag structure of the HTMLs and comparing them with signatures of web pages that we want to protect and with recent phishing templates.

Key words: phishing, detection filters.

2000 Mathematics Subject Classification: 68Q99.

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A Java Based Light Distributed File System

Adrian Alexandrescu and Mihai Horia Zaharia



[Full text](#)

In this paper a light distributed file system implemented from scratch is presented. The system has all base characteristics that are typical for this kind of systems. The Java technology was elected because nowadays the mobility and platform independence is a common requirement for most of the application. As result this system can be used in any kind of cluster either static or dynamic no matter of the geographic distribution scale.

Key words: distributed computing, SSL, DFS.

2000 Mathematics Subject Classification: 68P25, 68N19

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Title of Fuel Economy and Emissions in Hybrid Electric Vehicles

Cezar Babici and Alexandru Onea



[Full text](#)

The interest in hybrid electric vehicles derives from several technical and economical considerations. Control strategies for hybrid topologies are algorithms for selecting the power split between the engine and the motor in order to minimize the fuel consumption and the emissions. For hybrid vehicles it is possible to use different kinds of batteries characterized by capacity and weight increasing the autonomy, in terms of working hours or distance. The principal aim of this paper is to demonstrate that fuel consumption and emissions can be reduced by using different control strategies in the same or different topologies

Key words: hybrid electric vehicle, energy consumption, vehicle simulator, control strategies.

2000 Mathematics Subject Classification: 93C99, 93A10

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