

# Call for Papers

## *Special Issue on Embedded Software Design for 3D Graphics Visualization*

In the field of Computer Graphics, one of the big challenges is to produce photo-quality images from a three-dimensional model. The challenge is especially bigger when this production has to occur in real time, i.e. at a rate of at least 60 frames per second (60 fps) to ensure interactivity between the user and the image preview. These goals are still far from being achieved, especially when it comes to combining performance and image quality as these are conflicting, i.e. better quality implies lower performance throughput and higher performance yields bad quality rendering results.

Graphics processors using algorithms based on Local Illumination (*rasterization*) dominate the market for at least two decades now. Rasterization is used to identify the process of converting a vector information (e. g. geometric descriptions) into an image. Within this implementation model, the hardware is not aware of the whole scene and its main focus is on how to project or convert polygons to image coordinate at a high speed, i. e. in an order of magnitude of hundreds of thousands of polygons per second, using a pipelined processing. However, without knowledge of the scene's characteristics and details about the position the other objects in the scene, the generated images lack of important features, like shadowing and reflection. The methods that can produce better and more realistic images are those that fall within the category of algorithms that use the principle of *Global Illumination*, in which the whole scene is evaluated with respect to each of its element before yielding the final image, as in the algorithm Ray tracing.

The Elsevier Embedded Software Design (JSA) Journal seeks original manuscripts for a Special Issue on Embedded Software for 3D Graphics Visualization scheduled to appear in the second half of 2011. The papers must present novel embedded software designs, architectures and models used for rendering 3D scenes efficiently.

### **Submission Guidelines**

The submitted papers must be written in English and describe original research which is neither published, nor currently under review by other journals or conferences. The author guidelines for preparation of manuscript can be found at <http://www.elsevier.com/locate/sysarc>. All manuscripts and any supplementary material should be submitted to the via the Elsevier online system of the journal, available at <http://ees.elsevier.com/jsa/>. Please, send all enquiries regarding this special issue to Guest Editors.

### **Important Dates**

Submission deadline: September 27, 2010  
First author notification: November 29, 2010  
Revisions due by: January 31, 2011  
Final Notification: March 29, 2011

### **Guest Editors**

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