



## EDITORIAL

# Cinematic rendering: When virtuality comes true

**KEYWORDS**

Three-dimensional (3D) imaging;  
Image processing;  
Cinematic rendering

Three-dimensional (3D) imaging is now a useful tool to routinely obtain important information and not only a cosmetic adjunct to two-dimensional images [1]. Studies that are now 30-year-old have demonstrated that 3D imaging techniques provide additional data unattainable with other imaging modalities that improve the preoperative assessment of the resectability of hepatic metastases and allow planning a safer surgical approach [2]. 3D imaging has also been used to better understand the complex anatomy of a variety of intra-abdominal or intra-thoracic organs and to identify anatomical variations [3–5]. Currently, 3D is part of daily routine and is shared by many specialties [6].

3D imaging can now be used with data obtained from ultrasound [7], computed tomography (CT) [8] and magnetic resonance imaging [9]. Regarding CT, the most commonly used 3D visualization methods are maximum intensity projection (MIP), volume rendering and surface rendering, which are available on any basic display console [10]. But recently, a new 3D visualization technique has become available known as cinematic rendering [11,12]. Cinematic rendering generates photorealistic images based on a new lighting model [11,12].

Cinematic rendering needs isotropic voxels from volumetric CT data similar to those used for MIP, volume rendering and surface rendering visualizations. Basically, cinematic rendering is very similar to volume rendering, although it utilizes a more complex global lighting model [11,12]. The global lighting model produces high degrees of surface detail and shadowing effects that generate depth in the 3D visualizations and give a photorealistic quality to the images. Preliminary works show that cinematic rendering produces photorealistic images with enhanced detail by comparison with other 3D visualization methods [11,12].

In this issue of *Diagnostic and Interventional Imaging*, three articles are devoted to the application of cinematic rendering to CT data to obtain breath-taking 3D images [13–15]. These three articles nicely illustrate how cinematic rendering shows promise in improving the visualization of enhancement pattern and internal architecture of abdominal lesions, local tumor extension, and global disease burden, which may be helpful in a variety of diseases for lesion characterization and pretreatment planning and also the potential applications in forensic imaging. Although the utility of cinematic rendering in terms of diagnostic capability improvement has not yet been fully established, these articles should suggest future directions for researchers to pursue.

## Disclosure of interest

The author declares that he has no competing interest.

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*Editor-in-Chief of Diagnostic & Interventional Imaging*

P. Soyer (MD, PhD)

Department of Radiology, Hôpital Cochin, AP-HP,

Université de Paris-Descartes Paris 5, 27, rue du

Faubourg Saint-Jacques, 75014 Paris, France

E-mail address: [philippe.soyer@aphp.fr](mailto:philippe.soyer@aphp.fr)