



US008325178B1

(12) **United States Patent**  
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(10) **Patent No.:** **US 8,325,178 B1**  
(45) **Date of Patent:** **Dec. 4, 2012**

(54) **LINES-OF-SIGHT AND VIEWSHEDS DETERMINATION SYSTEM**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 895 days.

(21) Appl. No.: **12/292,786**

(22) Filed: **Nov. 26, 2008**

**Related U.S. Application Data**

(60) Provisional application No. 60/992,343, filed on Dec. 5, 2007.

(51) **Int. Cl.**  
**G06T 15/00** (2011.01)

(52) **U.S. Cl.** ..... **345/419**

(58) **Field of Classification Search** ..... 345/419-428  
See application file for complete search history.

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(57) **ABSTRACT**

A method for processing three-dimensional data that defines a three-dimensional scene, and determining and displaying lines-of-sight (LOS) and viewsheds on all visible surfaces of the scene, includes: i) assigning at a user-selected location at least one viewpoint in the scene; ii) applying ray tracing from locations in the scene to the viewpoint to determine locations in the scene that are in a line of sight (LOS) and outside the LOS of the viewpoint, thus determining the viewshed relative to the viewpoint; and iii) color-coding every visible surface in the scene. The color coding then differentially indicates the locations in the line of sight (LOS) and outside the LOS of the viewpoint, producing a display of a color-coded viewshed relative to the viewpoint. Additionally ray tracing can be applied from locations above the scene to determine headroom contours for those locations in the scene.

**14 Claims, 18 Drawing Sheets**  
**(13 of 18 Drawing Sheet(s) Filed in Color)**

