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(54) Title: REAL-TIME RENDERING OF LIGHT-SCATTERING MEDIA

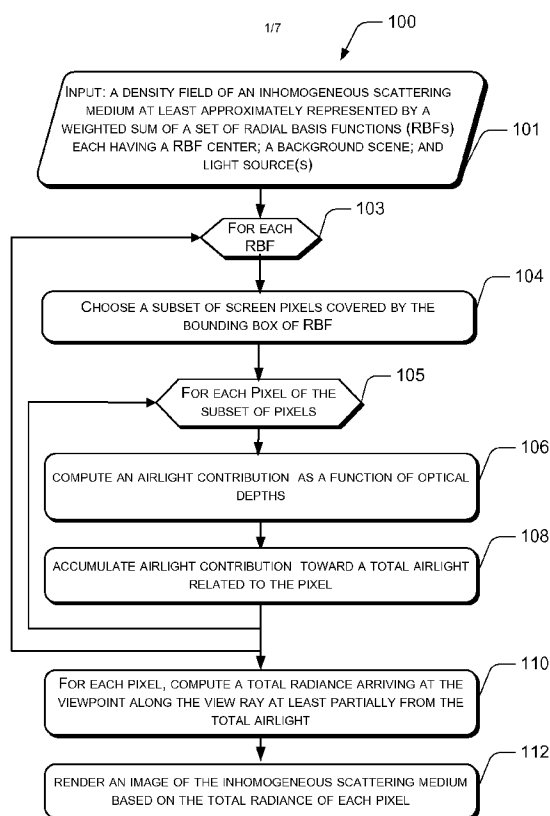


Fig. 1

(57) Abstract: A real-time algorithm for rendering of an inhomogeneous scattering medium such as fog is described. An input media animation is represented as a sequence of density fields, each of which is decomposed into a weighted sum of a set of radial basis functions (RBFs) such as Gaussians. The algorithm computes airlight and surface reflectance of the inhomogeneous scattering medium. Several approximations are taken which lead to analytical solutions of quantities such as optical depth integrations and single scattering integrations, and a reduced number of integrations that need to be calculated. The resultant algorithm is able to render inhomogeneous media including their shadowing and scattering effects in real time. The algorithm may be adopted for a variety of light sources including point lights and environmental lights.



NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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PCT/US2008/068438**A. CLASSIFICATION OF SUBJECT MATTER***G06T 15/00(2006.01)i, G06T 17/00(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Korean Utility models and applications for Utility models since 1975
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eKIPASS, SEARCH TERMS: LIGHT SCATTERING, ATMOSPHERIC EFFECT, and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2006-318389 A (NAMCO BANDAI GAMES CO., LTD.), 24 November 2006 See abstract, page9, paragraph<85>-<89>	1-20
A	US 05754185 A (JAN-HAN HSIAO et al.), 19 May 1998 See abstract, column4, line30-column5, line34	1-20
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A	US 2001-0040999 A1 (NOBUHIRO FUKUDA), 15 November 2001 See abstract	1-20



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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Information on patent family members

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