

28/11/03
2003070752

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
5 December 2002 (05.12.2002)

PCT

(10) International Publication Number
WO 02/097735 A1

(51) International Patent Classification⁷: **G06T 17/10**

(21) International Application Number: PCT/SG01/00111

(22) International Filing Date: 31 May 2001 (31.05.2001)

(25) Filing Language: English

(26) Publication Language: English

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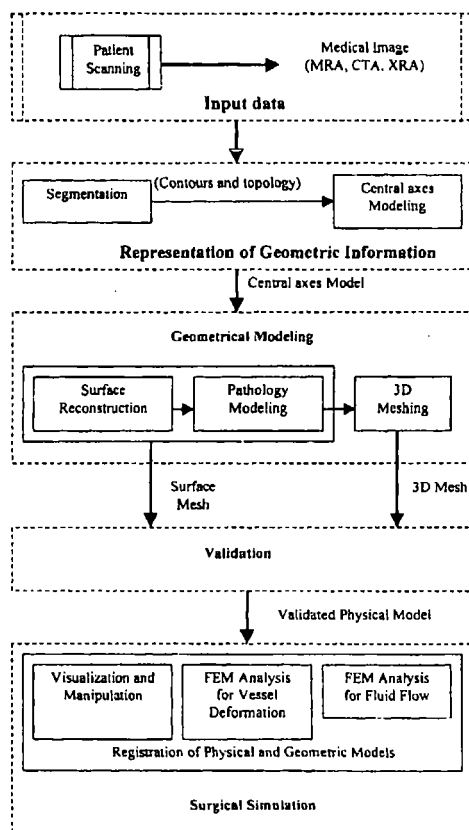
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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SI, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

[Continued on next page]

(54) Title: SYSTEM AND METHOD OF ANATOMICAL MODELING



(57) Abstract: Methods of modeling anatomical structures, along with pathology including the vasculature, spine and internal organs, for visualization and manipulation in simulation systems. A representation of the human vascular network is built up from medical images and a geometrical model produced therefrom by extracting topological and geometrical information. The model is constructed using segments containing topology structure information, flow domain information contour domain information and skeletal domain information. A realistic surface is then applied to the geometric model, by generating a trajectory along a central axis of the geometric model, conducting moving trihedron modeling along the generated trajectory and then creating a sweeping surface along the trajectory. A novel joint reconstruction approach is also proposed whereby a part surface sweeping operation is performed across branches of the joint and then a surface created over the resultant holes therebetween. A 3-D mesh may also be generated, based upon this model, for finite element analysis and pathology creation.



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IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

(48) Date of publication of this corrected version:

18 December 2003

(15) Information about Correction:

see PCT Gazette No. 51/2003 of 18 December 2003, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.