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(54) Title: ANATOMICAL VISUALIZATION AND MEASUREMENT SYSTEM



(57) Abstract: In another preferred form of the present invention, there is provided a method for determining the risk of rupture of a blood vessel using an appropriate set of 2-D slice images obtained by scanning the blood vessel, the method comprising: generating a mesh model of the blood vessel using the set of 2-D slice images; conducting finite element stress analysis on the mesh model to calculate the level of stress on different locations on the mesh model; and determining the risk of rupture of the blood vessel based on the calculated levels of stress on different locations on the mesh model. In another preferred form of the present invention, there is provided an apparatus for determining the risk of rupture of a blood vessel using an appropriate set of 2-D slice images obtained by scanning the blood vessel, the apparatus comprising: apparatus for generating a mesh model of the blood vessel using the set of 2-D slice images; apparatus for conducting finite element stress analysis on the mesh model to calculate the level of stress on different locations on the mesh model; and apparatus for determining the risk of rupture of the blood vessel based on the calculated levels of stress on different locations on the mesh model.

WO 2006/002353 A3



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61B 5/02, 6/00; G06F 17/50; G06K 9/00

USPC: 382/128; 600/480, 482, 485, 500; 716/20

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)

U.S. : 382/128; 600/480, 482, 485, 500; 716/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
ACM, IEEE Xplore, SPIE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,511,426 B1 (HOSSACK et al) 28 January 2003(28.01.2003), figures 1 & 8; column 19, lines 21-45	1-35
Y	US 5,731,817 (HAHS JR et al) 24 March 1998 (24.03.1998), column 1, lines 11-21 and 55-57	1-35
Y	US 6,447,454 B1 (CHENAL et al) 10 September 2002 (10.09.2002), column 14, line 15-column 15, line 7	2-9
Y	US 4,945,478 (MERICKEL et al) 31 July 1990 (31.07.1990), figures 3, 7-13; column 1, line 66-column 2, line 17	12-13, 15
Y	US 6,456,289 B1 (O'BRIEN et al) 24 September 2002 (24.09.2002), figures 1, 5, 6A, 6B, 15A-15D; column 5, lines 27-32	20
Y	US 5,987,236 (YONEDA) 16 November 1999 (16.11.1999), figure 13; column 4, lines 17-27; column 11, lines 49-52	22, 29
Y	US 2002/0043111 A1 (TAKAGI et al) 18 April 2002 (18.04.2002), page 2, paragraph 27	23



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PCT/US05/22420**C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0004902 A1 (YAMANISHI et al) 02 January 2002 (02.01.2003), figure 3; page 1, paragraph 4 and page 5, paragraphs 84-90	26
Y	US 2003/0046128 A1 (HEINRICH) 06 March 2003 (06.03.2003), pages 3-4, paragraphs 46-48	32