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(54) Semi-automated segmentation method for 3-dimensional ultrasound

(57) The present invention provides a semi-automated method for three-dimensional ultrasound for constructing and displaying 3D ultrasound images of luminal surfaces of blood vessels. The method comprises acquiring a 3D ultrasound image of a target vessel and segmenting the luminal surfaces acquired from the 3D ultrasound image of the target vessel to generate a 3D ultrasound image of the lumen of the target vessel, wherein an inflating balloon model is used for segmenting the luminal surfaces of the target vessel. The method is useful for diagnostic assessment of bodily vessels as well as provides for therapy planning and as a prognostic indicator.

EP 1 030 191 A3

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which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number EP 00 30 1267

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 559 901 A (LOBREGT STEVEN) 24 September 1996 (1996-09-24) * abstract; figures 1-4,7-9 * * column 1, line 9 - column 2, line 11 * * column 3, line 21-52 * * column 4, line 60 - column 6, line 5 * * column 8, line 45 - column 10, line 54 * * column 11, line 52 - column 13, line 14 * ---	1-6, 8-12,15	G01S15/89 G01S7/52 A61B8/00 G06T17/00 G06T5/00
X	COHEN L D ET AL: "Deformable models for 3-D medical images using finite elements and balloons" PROCEEDINGS OF THE COMPUTER SOCIETY CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION. CHAMPAIGN, IL, JUNE 15 - 18, 1992, NEW YORK, IEEE, US, 15 June 1992 (1992-06-15), pages 592-598, XP010029362 ISBN: 0-8186-2855-3 * the whole document * --- -/--	1-6, 8-12,15	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

G06T
G01S

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.

Claims searched completely :

1-12,15

Claims searched incompletely :

Claims not searched :

13,14

Reason for the limitation of the search:

Claims 13 and 14 explicitly describe "a method for the diagnosis and prognosis of vessel disease". Such subject matter is excluded from patentability under Art. 52(4), EPC.

Place of search	Date of completion of the search	Examiner
MUNICH	10 February 2003	Reuss, T

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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T : theory or principle underlying the invention
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D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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EPO FORM 1503 03.82 (P04C10)

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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X,D	T. MCINERNEY, D. TERZOPOULOS: "Deformable Models in Medical Analysis: A Survey" MEDICAL IMAGE ANALYSIS, vol. 1, no. 2, June 1996 (1996-06), pages 91-108, XP002230283 * abstract; figures 3-6 * * page 6, paragraph 3 - page 10, paragraph 2 *	1,15	
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 00 30 1267

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10-02-2003

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	三维超声的半自动分割方法		
公开(公告)号	EP1030191A3	公开(公告)日	2003-04-16
申请号	EP2000301267	申请日	2000-02-17
申请(专利权)人(译)	约翰P.罗巴茨研究所		
当前申请(专利权)人(译)	约翰P.罗巴茨研究所		
[标]发明人	LADAK HANIF M GILL JEREMY D STEINMAN DAVID A FENSTER AARON		
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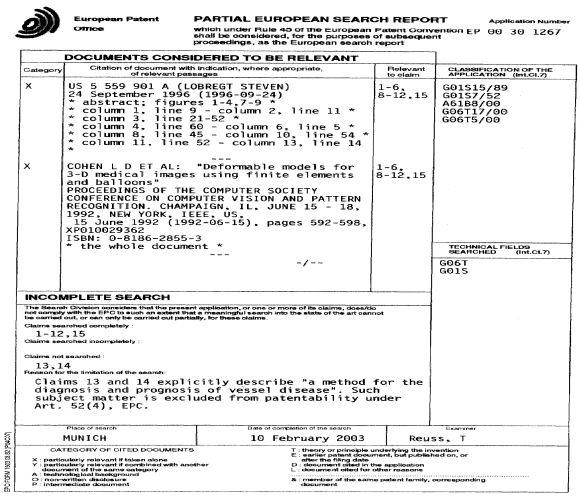
IPC分类号	A61B8/00 A61B8/12 G01S7/52 G01S15/89 G06T17/00 G06T5/00		
CPC分类号	A61B5/02007 A61B5/418 A61B8/12 G01S7/52036 G01S15/8993 G06T2207/30101 Y10S128/916		
优先权	09/253385 1999-02-19 US		
其他公开文献	EP1030191A2		
外部链接	Espacenet		

摘要(译)

本发明提供了一种用于三维超声的半自动方法，用于构建和显示血管腔表面的3D超声图像。该方法包括获取目标血管的3D超声图像并分割从目标血管的3D超声图像获取的腔表面以生成目标血管的腔的3D超声图像，其中使用充气气球模型进行分割。目标血管的腔表面。该方法可用于身体血管的诊断评估，并提供治疗计划和预后指标。



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