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(54) Title: CARDIAC THREE-DIMENSIONAL MAPPING METHOD AND SYSTEM

(54) 发明名称: 一种心脏三维标测方法及系统

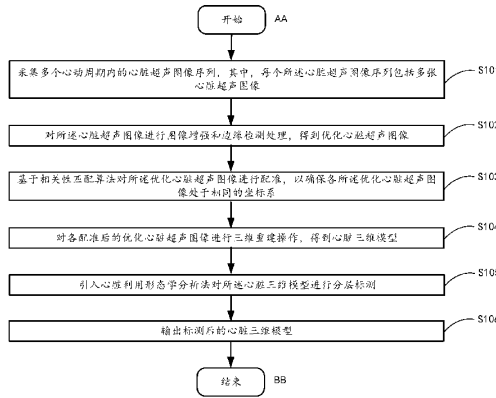


图 1

- S101 Collect cardiac ultrasound image sequences within a plurality of cardiac cycles, wherein each cardiac ultrasound image sequence comprises a plurality of cardiac ultrasound images
S102 Perform image enhancement and edge detection processing on the cardiac ultrasound images to obtain optimized cardiac ultrasound images
S103 Register the optimized cardiac ultrasound images on the basis of a correlation matching algorithm, so as to ensure that the optimized cardiac ultrasound images are in the same coordinate system
S104 Perform a three-dimensional reconstruction operation on the registered optimized cardiac ultrasound images, so as to obtain a three-dimensional cardiac model
S105 Introduce the three-dimensional cardiac model, and perform layered mapping on the three-dimensional cardiac model by using a morphological analysis method
S106 Output the mapped three-dimensional cardiac model
AA Start
BB End

(57) Abstract: A cardiac three-dimensional mapping method and system, which belong to the technical field of image mapping. The method comprises: collecting cardiac ultrasound image sequences within a plurality of cardiac cycles, wherein each cardiac ultrasound image sequence comprises a plurality of cardiac ultrasound images; performing image enhancement and edge detection processing on the cardiac ultrasound images to obtain optimized cardiac ultrasound images; registering the optimized cardiac ultrasound images on the basis of a correlation matching algorithm, so as to ensure that the optimized cardiac ultrasound images are in the same coordinate system; performing a three-dimensional reconstruction operation on the registered optimized cardiac ultrasound images, so as to obtain a three-dimensional cardiac model; introducing the three-dimensional cardiac model, and performing layered mapping on the three-dimensional cardiac model by using a morphological analysis method; and outputting the mapped three-dimensional cardiac model. Collected cardiac ultrasound images are subjected to image enhancement and edge detection and are then registered, and a three-dimensional cardiac model is then established and is subjected to layered mapping, such that the display clarity of the three-dimensional cardiac model and the accuracy and reliability of a three-dimensional cardiac structure mapping result are improved.

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BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,
HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO,
PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF,
CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN,
TD, TG)。

本国际公布：
— 包括国际检索报告(条约第21条(3))。

(57) 摘要：一种心脏三维标测方法及系统，属于图像标测技术领域。采集多个心动周期内的心脏超声图像序列，其中每个心脏超声图像序列包括多张心脏超声图像；对心脏超声图像进行图像增强和边缘检测处理，得到优化心脏超声图像；基于相关性匹配算法对优化心脏超声图像进行配准，以确保各优化心脏超声图像处于相同的坐标系；对各配准后的优化心脏超声图像进行三维重建操作，得到心脏三维模型；引入心脏三维模型利用形态学分析法对心脏三维模型进行分层标测；输出标测后的心脏三维模型。对采集到的心脏超声图像经过图像增强和边缘检测后进行配准，之后建立心脏三维模型进行分层标测，提升心脏三维模型的显示清晰度和心脏三维结构标测结果的准确性和可靠性。