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Fully Automated Multi-Organ Segmentation From Medical Imaging

Tech ID: 33455 / UC Case 2020-303-0

BRIEF DESCRIPTION

A comprehensive method for automated multi-organ segmentation based on deep fully convolutional networks and adversarial training, achieving superior results compared to existing techniques.

APPLICATIONS

- Improvements in medical imaging technology
- Integration into AI-based diagnostic systems
- Enhancements in research applications requiring organ segmentation

ADVANTAGES

- Utilizes fully convolutional networks and adversarial training
- Offers a fully automated system, reducing the need for human intervention
- Provides superior results, as demonstrated by high Dice metrics

Problems Solved:

- *Solves the problem of time-consuming and error-prone manual multi-organ segmentation
- *Improves upon the accuracy limitations of existing automated methods

DESCRIPTION

This technology offers a fully-automatic method for multi-chamber segmentation, utilizing deep fully convolutional networks and adversarial training. The system was successfully tested on 20 echocardiograms from 100 patients for training and validation, outperforming state-of-the-art techniques with significantly improved Dice metrics.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,651,487	05/16/2023	2020-303

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OTHER INFORMATION

CATEGORIZED AS

- » **Imaging**
 - » Medical
- » **Medical**
 - » Diagnostics
 - » Imaging
 - » Other
 - » Research Tools
- » **Research Tools**
 - » Other

RELATED CASES

2020-303-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Percutaneous Heart Valve Delivery System Enabling Implanted Prosthetic Valve Fracture
- ▶ A distensible wire mesh for a cardiac sleeve
- ▶ Method to Improve the Accuracy of an Independently Acquired Flow Velocity Field Within a Chamber, Such as a Heart Chamber
- ▶ Percutaneous Heart Valve Delivery System
- ▶ Growth-Accomodating Transcatheter Pulmonary Valve System
- ▶ System for Transcatheter Grabbing and Securing the Native Mitral Valve’s Leaflet to a Prosthesis
- ▶ Multiple-Input Multiple-Output (MIMO) Systems for Multi-Packet Reception (MPR)
- ▶ Real-time 3D Image Processing Platform for Visualizing Blood Flow Dynamics
- ▶ Method for Synchronizing a Pulsatile Cardiac Assist Device with the Heart
- ▶ Automated Histological Image Processing tool for Identifying and Quantifying Tissue Calcification
- ▶ Cost-Efficient Repair For Cloud Storage Systems Using Progressive Engagement
- ▶ Simple, User-friendly Irrigator Device for Cleaning the Upper Aerodigestive Tract and Neighboring Areas
- ▶ Automated 3D Reconstruction of the Cardiac Chambers From MRI of Ultrasound
- ▶ Minimally Invasive Percutaneous Delivery System for a Whole-Heart Assist Device

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