CathAI: AI-Powered Platform for Automated Coronary Angiogram Analysis and Advanced Cardiovascular Diagnostics

Tech ID: 34604 / UC Case 2021-041-0

TECHNOLOGY DESCRIPTION

UCSF inventors have developed CathAI, a groundbreaking deep learning-based platform that fully automates the analysis of coronary angiograms, the gold standard for diagnosing coronary heart disease (CHD)—the leading cause of mortality worldwide. By leveraging a pipeline of six interconnected algorithms, CathAI delivers rapid, standardized, and highly reproducible assessments of coronary artery stenosis severity, addressing the variability and bias inherent in traditional manual interpretation methods. Validated on a robust dataset of approximately 200,000 angiogram videos from over 12,000 individuals, the platform has demonstrated outstanding accuracy across all automated analysis tasks, with external validation at leading institutions further confirming its reliability in real-world clinical settings. Capable of analyzing angiograms in seconds using commonly available GPU hardware, CathAI supports real-time decision-making during procedures while seamlessly integrating with cloud or server-based workflows for retrospective analysis. Beyond stenosis assessment, CathAI provides a scalable foundation for developing advanced tools such as non-invasive fractional flow reserve (FFR) measurements, which estimate blood flow through narrowed arteries without requiring invasive catheterization. This transformative technology offers biotech companies, technology developers, and venture capitalists a unique opportunity to revolutionize cardiovascular diagnostics and care.

RELATED MATERIALS

- CathAI: fully automated coronary angiography interpretation and stenosis estimation, PMCID: PMC10421915 DOI: 10.1038/s41746-023-00880-1 - 08/11/2023

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Automated Coronary Angiogram Analysis, Deep Learning Cardiovascular Diagnostics, AI-Powered CHD Management Solutions, Real-Time Coronary Stenosis Assessment, Non-Invasive Cardiac Diagnostics

CATEGORIZED AS

- **Biotechnology**
  - Bioinformatics
  - Health
- **Imaging**
  - Medical
  - Software
- **Medical**
  - Diagnostics
  - Disease: Cardiovascular and

Circulatory System

- Imaging
- Software

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