TECH OFFER

Comprehensive Ai Driven Platform For Ct Coronary Angiography

AI driven national platform for CT coronary angiography for clinical and industrial applications

APOLLO

Coronary calcium score, epicardial adipose tissue, stenosis, and plaque

KEY INFORMATION

TECHNOLOGY CATEGORY:
Healthcare - Telehealth, Medical Software & Imaging

TECHNOLOGY READINESS LEVEL (TRL): **TRL7**
COUNTRY: **SINGAPORE**
ID NUMBER: **TO174976**

OVERVIEW

Coronary artery disease (CAD) is the leading cause of death worldwide. Computed Tomography Coronary Angiography (CTCA), as a non-invasive alternative to invasive catheterized coronary angiography, has emerged as a recommended first-line investigation for CAD. However, the current practice of generating reports involves a time-intensive process, with CT specialists spending 3-6 hours annotating scans. Furthermore, there is a lack of effective tools for analysing coronary calcium scores, stenosis severity, and plaque characterization.

This AI driven platform is for CT data processing that provides a streamlined 'one-stop' solution spanning from diagnosis to clinical management and prognosis. Its key features include:

- AI-driven platform for CTCA, catering to clinical, research, and industrial applications.
- Large, shareable, de-identified, Personal Data Protection Act-compliant real-world CT data.
- Precision toolkits for anonymization, coronary calcium scoring, epicardial adipose tissue (EAT), stenosis severity

assessment, plaque quantification, CT fractional flow reserve (FFR), and reporting.

The platform's highly automated features assist physicians in interpreting and synthesizing large volumes of CT data, while minimizing bias, increasing reproducibility, and providing numerical insights in a graphical manner. It offers a comprehensive 'one-stop' solution for diagnosis and clinical management of CAD.

TECHNOLOGY FEATURES & SPECIFICATIONS

- Seamless integration: The DICOM-compliant parser ensures compatibility with diverse CT scanners without interfering with hospitals' original workflow processes.
- AI-driven workflow: It supports fully automated analysis, including deep learning-based segmentation of the coronary artery tree, extraction of artery centrelines, tracking and acquisition of cross-section lumen images, artery labelling, stenosis and plaque detection, and quantification with high accuracy within minutes.
- Comprehensive modules for CAD assessment: The technology offers a comprehensive assessment of coronary calcium score, EAT, stenosis, and plaque phonotypes.
- Mixed Asian registry database: It houses a vast repository of multi-ethnic imaging and non-imaging data, serving as a valuable resource for research and analysis.
- Annotation by SCCT-certified experts: All annotations are performed and quality-checked by experts certified by the Society of Cardiovascular Computed Tomography (SCCT).
- Secure and reliable data platform: The data platform is certified by the Ministry of Health Singapore, ensuring the safety and reliability of data access.

POTENTIAL APPLICATIONS

The technology can be applied across various industries:

- Software as a clinical service for healthcare institutions: It provides comprehensive CAD assessment and personalized treatment as a software-as-a-service (SaaS) solution for healthcare institutions.
- Pharmaceuticals: It enables objective and quantitative measurement of the effectiveness of treatments.
- MedTech and digital health industry: By harnessing state-of-the-art technology and big data capabilities, it provides the development of customized foreground intellectual property, addressing the specific needs of individual companies.
- Local MedTech industry development: It offers tailored solutions designed specifically for small and medium-sized enterprises (SMEs) and startups, empowering them to compete globally, foster innovation in product development and services that align with market demands, and enhance patient care.

UNIQUE VALUE PROPOSITION

It provides a thorough evaluation of the coronary arteries using deep learning algorithms and patented post-processing technologies. It serves as a 'one stop' platform that spans from diagnosis to clinical management and prognosis, and aiding in predicting therapy response in the pharmaceutical industry.

- Superior diagnostic performance: The AI toolkits deliver exceptional accuracy, surpassing 90%, while processing the data within minutes. This remarkable speed is 20 times faster than the standard diagnostic and reporting process, enabling efficient and timely decision-making.
- Unparalleled big data repository: The platform houses the largest mixed Asian CAD registry, comprising 5,000 patients

(n=3 million images). This vast collection contains a wealth of real-world imaging and non-imaging data, representing a unique and invaluable resource that is unmatched elsewhere.

- Trusted ground truth: Every CT scan has been meticulously annotated and quality-checked by SCCT-certified experts. This rigorous process ensures the accuracy and reliability of the data, establishing a safe and dependable foundation for clinical decision-making.