TECH OFFER

Ai-Aided Analysis Of Capsule Endoscopy Images

KEY INFORMATION

TECHNOLOGY CATEGORY:
Infocomm - Artificial Intelligence
Infocomm - Video/Image Processing

TECHNOLOGY READINESS LEVEL (TRL): **TRL7**
COUNTRY: **SINGAPORE**
ID NUMBER: **TO174789**

OVERVIEW

With the increasing global prevalence of gastrointestinal disorders, the rise in the geriatric population, and the preference for minimally invasive techniques by patients for diagnosis, the demand for capsule endoscopy is expected to grow to $1.2 billion by 2026. But the process of detecting lesions or abnormalities from the images taken by the capsule endoscope is very tedious, time-consuming and error-prone. It takes about two hours for a doctor to read an image due to which the missed diagnosis rate could be high.

This technology offer is an AI platform that assists with the clinical diagnosis of endoscopy images and it comprises three deep learning networks that can be used to classify vascular lesions/inflammation, improve the image quality of the area of interest, and upscale the image resolution.

TECHNOLOGY FEATURES & SPECIFICATIONS

This technology comprises three deep learning networks:

- A lesion classification network that can be used to classify vascular lesion images, inflammatory images, and normal images with more than 95% accuracy
- A segmentation network that can be used to clarify the location and area of the lesions with an Intersection-of-Union (IOU) of more than 85%
- A super-resolution network that enlarges the resolution to twice its original resolution, resulting in clearer images

POTENTIAL APPLICATIONS

This technology comprises several neural networks that assist doctors/clinicians in hospitals and clinics which use capsule endoscopy techniques to capture images of the gastrointestinal track. It augments the clinician's workflow by reducing the cognitive load of locating lesions, it therefore reduces the time taken for diagnosis and improves the overall accuracy of diagnosis.

UNIQUE VALUE PROPOSITION

- Supports clinicians by pre-classifying large volumes of images captured by capsule endoscopes
- Aids clinicians in rapidly localising potentially problematic areas within captured images
- Improves the quality of images to facilitate accurate diagnosis

The technology owner is interested in collaboration/co-development/customisation of the technology into a new product or service.