

TECH OFFER

Ai-Based Medical Imaging Assistant For Breast Cancer Screening



KEY INFORMATION

TECHNOLOGY CATEGORY:

Infocomm - Artificial Intelligence

Healthcare - Diagnostics

Healthcare - Medical Devices

Healthcare - Telehealth, Medical Software & Imaging

Infocomm - Healthcare ICT

TECHNOLOGY READINESS LEVEL (TRL): **TRL5**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO174383**

OVERVIEW

Breast cancer is one of the leading causes of mortality in the world and the most commonly occurring cancer in women. On average, one in 11 women will be affected by breast cancer in their lifetime, with more than 2.3 million women diagnosed in the year of 2020 alone. Early detection has the potential to save lives by significantly enhancing the survival rates as the chances of recovery drops significantly beyond stage 2 of the disease. Many countries have established screening programs for breast cancer as measures for early disease detection, as well as implemented relevant reimbursement schemes for supporting these programs. Among various screening methods, 2D mammography has been found to be the most accurate way of conducting such programs for large populations. However, there still lies challenges with existing mammography screening including inefficiencies in current clinical care workflow causing long waiting periods and inaccuracies in manual reading interpretation.

The technology addresses these issues by augmenting the existing clinical workflow for radiologists diagnosing breast cancer by first, allowing for faster mammogram readings, and second eliminating the requirement for double-blind reading per screen for each diagnosis. The AI assistive technology tops in Asia for its proven AI algorithm for breast cancer detection at one of the highest AUC accuracy levels of 0.96, and is capable of reducing false positives for dense breast in Asian women.

TECHNOLOGY FEATURES & SPECIFICATIONS

Speed and accuracy are key to breast cancer screening. The technology features a core algorithm developed based on Computer Vision, Deep Learning and Natural Language Processing, which enhances the current clinical care workflow by serving as an AI assistant to a single reader radiologist instead of the need for a double-blind reading. The algorithm achieves one of the highest AUC accuracy levels in the world at 0.96. Among other AI-driven mammogram image analysis tools, the technology provides its niche ability to detect lesions in dense breast, which is common in Asian women.

The technology comprises the following features:

- Annotation tools
- Automated reports
- AI enabled heat map generation
- AI powered prediction features

The AI powered prediction capability of the technology predicts lesion types, and triages similarly to Bi-RADS scoring system to flag out mammograms that require follow-up by radiologists and clinicians. This assistive feature alleviates the work burden on mammogram radiologists, thereby better-streamlining clinical work processes for potential mammograms requiring further medical attention.

POTENTIAL APPLICATIONS

The technology currently focuses as an AI-based virtual assistant for mammogram. Given the versatility of the core algorithm, with sufficient data sets and development, the technology can be envisioned to be deployed for other medical imaging applications that require manual interpretation including MRI, ultrasound and tomography.

BENEFITS

- Better patient experience with shorter turnaround for screening results, i.e. shorter anxiety periods
- Enhanced screening accuracy to minimize misdiagnosis, thereby allowing for early detection, treatment, and survival
- Ease of workload and burden on breast radiologists, allowing capacity for interpretations on complex readings
- Automated abnormal lesion identification, particularly for dense breast which can be difficult to localize