AI Medical Service Inc.

Developing unprecedented real-time endoscopic image diagnostic technology for gastrointestinal cancer by applying a convolutional neural network (CNN)

www.ai-ms.com/en

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Founded in:	2017
CEO:	Tomohiro Tada, MD, PhD
No. of employees:	50
Type of Ownership:	private
Primary stock exchange:	N/A

February 2020: Founded by an accomplished gastroenterologist, AI Medical Service is determined to contribute to the detection of early cancer in the digestive tract by leveraging a CNN deep learning algorithm.
Venture Valuation (VV) interviewed Tomohiro Tada, Founder and CEO.

VV: **Your CNN algorithm for gastric cancer has recently received Breakthrough Device Designation from the U.S. Food and Drug Administration (FDA).**

Tada: Breakthrough Device Designation is granted to medical devices and device-led combination products that provide the potential for a more effective treatment option for life-threatening or overwhelmingly devastating diseases. The designated device/product takes advantage of the streamlined market clearance and approval process in the U.S.

Early detection of any cancer is vital for patient treatment. Being a gastroenterologist, I am fully aware that the detection rate of gastric cancer mostly depends on endoscopists. Although they are highly experienced, yet they occasionally overlook early stage insignificant cancerous lesions.

In order to support faster and more accurate examination of voluminous quantities of endoscopic images, we have developed our endoscopic image diagnostic technology by applying CNN.

The image shown is a snapshot in the process of detecting the probability of existence of early gastric cancer. A study in collaboration with the Cancer Institute Hospital Ariake, the largest hospital specializing in cancer

care in Japan, has achieved a detection rate of 92.2% with a processing speed of 2,296 images per 47 seconds. The detection rate is higher, 98.6%, when limiting the size of lesions to over a diameter of 6 mm and to invasive cancers[1]. This is the world record for the detection of gastric cancer by the CNN-based endoscopic diagnostic technology.

VV: Why did you decide to start with gastric cancer for your first detection product development?

Tada: Our worldwide competitors are mostly focusing on colorectal cancer, which is less complicated to detect than cancerous lesions in the stomach. Often confused with gastritis symptoms, gastric cancer tends to be diagnosed at advanced stages: 2, 3 and 4.

Secondly, gastric cancer is the 2nd most commonly diagnosed cancer in Japan. The real-time and highly accurate detection system will save lives as well as reduce medical costs.

Lastly, endoscopic screening for gastric cancer requires a double check by experienced gastroenterologists. They spend a few hours to examine 2,000 to 3,000 images, which is an additional burdensome workload. Our technology will definitely allow them to use their time more efficiently.

VV: Your competitive advantage is research and development collaboration with top-level gastroenterologists from over 80 major medical institutions in Japan.

Tada: Japan is advanced in the field of endoscopic medical care technology and high quality images are available in considerable quantity. The higher the quality of data used for training and validation, the better is the performance of the CNN-based endoscopic diagnostic technology.

With experts in gastroenterology, gastrointestinal oncology, and other related disciplines, we have published various articles in EBioMedicine (The Lancet), GIE Journal, Scientific Reports (Nature), and other internationally well-known scientific publications.

VV: In last year's series B round, your company raised about 43 million USD. That has enabled you to accelerate clinical trials and commercialization of the technology.

[1]"Application of artificial intelligence using convolutional neural network for detecting gastric cancer in endoscopic images" https://www.ncbi.nlm.nih.gov/pubmed/29335825

Tada: Obtaining the FDA Breakthrough Device Designation and additional funds has helped us speed up the clinical and regulatory processes in the U.S. and, ultimately, in Japan and the rest of the world.

Furthermore, we are welcoming global collaboration, for instance, to work with medical institutions from different countries and regions. Any partnership to advance the technology is appreciated.

VV Comments after the interview:

According to the Report on Artificial Intelligence in the Medicine Market – Growth, Trends, and Forecast (2019 -2024) in October 2019[2], the global market was estimated at 2.24 billion USD in 2018 and is valued at 17.02 billion USD by 2024 at a compound annual growth rate of 40.15%.

AI Medical Service is currently well positioned to be a frontrunner in the field of the CNN-based endoscopic diagnostic technology. The company is planning to develop cancer detection products covering all organs in the digestive tract.

Dr Toda is not only a medical entrepreneur but also still managing to examine patients at his own clinic. His clinical knowledge and experience are a driving force. He mentioned that he wants to “not only lessen the examination burden on endoscopy physicians but also provide more time to doctors to investigate cancerous areas”.

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[2] https://www.globenewswire.com/news-release/2019/10/15/1929939/0/en/Artificial-Intelligence-AI-in-Medicine-Industry-Report-2019-World-Market-Anticipated-to-Grow-from-2-24-Billion-in-2018-to-17-02-Billion-by-2024-at-a-CAGR-of-40-15.html