PRESS RELEASE

AI Singapore harnesses advanced speech technology to help organisations improve frontline operations

New AI Speech Lab to develop speech recognition system that could interpret and process Singlish and vocabulary unique to Singaporeans

Singapore, 9 July 2018 – AI Singapore (AISG) has set up the AI Speech Lab to develop a speech recognition system that could interpret and process the unique vocabulary used by Singaporeans – including *Singlish* and dialects - in daily conversations. This automatic speech transcribing system could be deployed at various government agencies and companies to assist frontline officers in acquiring relevant and actionable information while they focus on interacting with customers or service users to address their queries and concerns.

Established as part of AISG's 100 Experiments (100E) Programme*, this new speech lab marks AISG's first major collaboration with multiple government agencies to design an AI system that could be deployed government-wide and in future, nation-wide. Discussions with companies to deploy the system are also underway. Located at the innovation 4.0 building within the National University of Singapore's Kent Ridge campus, the lab is operational from 1 July 2018.

"The AI Speech Lab came about as we had, over the last few months, received multiple 100E requests from agencies and companies for a colloquial Singaporean English (Singlish) speech-to-text engine. This is a challenge that is unique to Singapore and the region which is currently not addressed by existing speech engines offered commercially or by major cloud-based AI providers," said Professor Ho Teck Hua, Executive Chairman of AI Singapore.

"The Government is keen to harness artificial intelligence to serve our citizens better. GovTech is collaborating with AI Singapore to develop solutions that can improve planning and service delivery. We are working with the AI Speech Lab on a speech-to-text engine for multi-language speech, for example, to transcribe 995 calls on-the-fly for faster response," said Mr Tan Kok Yam, Deputy Secretary (Smart Nation and Digital Government).

AI Speech Lab

The new research lab is led by Professor Li Haizhou, a world-renowned expert in Speech, Text and Natural Language Processing from the National University of Singapore, and Associate Professor Chng Eng Siong from the Nanyang Technological University.

They recently developed the world's first code-switch (mixed-lingual) speech recognition engine using deep learning technology. This technological breakthrough represents a paradigm shift in speech recognition and understanding. The AI Speech Lab will adopt this advanced speech recognition technology to benefit Singapore.

The novel code-switch speech recognition engine can recognise speech that comprises a mix of English and Chinese words in the same sentence, as if they belong to the same language. Furthermore, to adapt to the local context, words in dialects such as 'jiak ba bueh' or 'hoh boh' (have you eaten or how are you in Hokkien) are also included into the engine lexicon.

"An automatic speech recognition system that is able to recognise a mix of languages in one conversation is currently not commercially available. This is because training a computer system to recognise different languages is a very complex and challenging task. Our recent technological breakthrough is the outcome of several years of research efforts in Singapore. This technology performs better than commercial engines as it can accurately recognize conversations comprising words from different languages and solves a unique Singapore problem," Prof Li explained.

AI Singapore is investing S$1.25 million to set up this new lab. Agencies and companies are expected to match this investment, bringing the total funding to S$2.5 million over the next three years. The lab, which occupies a floor area of 125 square metres, will be staffed by five AI engineers for a start.

Maiden collaboration with SCDF to manage emergency calls

The AI Speech Lab has secured its first collaborator - the Singapore Civil Defence Force (SCDF).

"The Singapore Civil Defence Force's 995 Operations Centre receives close to 200,000 calls for assistance every year. When a call is received, our dispatchers need to ask some questions to determine the nature and severity of the case, to facilitate the deployment of appropriate emergency medical resources. In an emergency, every minute counts. The new speech recognition system, if successful, will help reduce the time needed to log in the information. This will improve how SCDF's emergency medical resources are dispatched and enhance the overall health outcomes of those in need." remarked Assistant Commissioner Daniel Seet, SCDF Director of Operations.

"This collaboration between the AI Speech Lab and SCDF is an important first step. The knowledge and experience acquired through this project will enable AI Singapore

to expand the deployment of this novel speech recognition engine to address other needs in the public service. Whilst we are first rolling out this system to the public service, we are confident that the solution will also benefit companies as the system can be customised according to their business needs. " said Prof Ho.

The 100 Experiments (100E) Programme will match industry players with top AI minds from Institutes of Higher Learning and Research Institutions in Singapore to solve their AI problem statements. 100E provides funding of up to S$250,000 for the assembled academics and researchers to work on the project sponsor's problem statement. The project sponsor is expected to match the funding in kind and in cash.

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About AI Singapore

AI Singapore (AISG) is a national programme launched by the National Research Foundation Singapore (NRF) to catalyse, synergise and boost Singapore's artificial intelligence (AI) capabilities to power our future, digital economy.

AISG is driven by a government-wide partnership comprising NRF, the Smart Nation and Digital Government Office (SNDGO), the Economic Development Board (EDB), the Infocomm Media Development Authority (IMDA), SGInnovate, and the Integrated Health Information Systems (IHiS).

AISG also brings together all Singapore-based research institutions and the vibrant ecosystem of AI start-ups and companies developing AI products, to perform use-inspired research, grow the knowledge, create the tools, and develop the talent to power Singapore's AI efforts.

For more information on AI Singapore, please visit https://www.aisingapore.org/