

# Plan to use AI to help emergency call operators

## SCDF turns to speech recognition system developed to transcribe and log each call

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With Singapore's emergency dispatch phone operators receiving almost 200,000 calls for assistance a year, every minute is vital.

In an effort to ease their workload, the Singapore Civil Defence Force (SCDF) and four other government agencies are turning to artificial intelligence (AI), using a speech recognition system developed to transcribe and log each call received in real time – even if it is in Singlish.

For now, the system is programmed to recognise English and Mandarin with some Hokkien and Malay, though it can be customised to incorporate other languages.

AI Singapore (AISG), a programme under the National Research Foundation, is investing \$1.25 million to set up the AI Speech

Lab, which is headed by the two professors who created the system.

The lab will adopt the first code-switch, or mixed-lingual, speech recognition engine, developed using artificial intelligence, such as deep learning technology.

“If successful, this will improve how SCDF's emergency medical resources are dispatched and enhance the overall health outcomes of those in need,” said the SCDF's director of operations, Assistant Commissioner Daniel Seet. It would do so by reducing the time it takes the SCDF's 995 operations centre dispatchers to log in information.

The AI Speech Lab is led by Professor Li Haizhou, an 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.

Prof Li said such a code-switch-



ing system is currently not commercially available.

He said: “This technology performs better than commercial engines as it can accurately recognise conversations comprising words from different languages. It solves a unique Singapore problem.”

To develop the system, researchers collected over 1,000 hours of combined recordings of English and Mandarin speech from Singapore and Penang – where languages are mixed in speech like in Singapore – and recordings of Singaporeans from radio stations, YouTube and SoundCloud.

The recordings are manually transcribed to text. The system then

80k

Number of English and Mandarin words the AI system has learnt.

90%

The system's accuracy rate.

“learns” the association between the text and collected samples. It knows about 40,000 words each in

English and Mandarin, and has an accuracy rate of about 90 per cent.

Unique words the system can recognise include “jiak ba bueh” and “hoh boh” – “have you eaten” and “how are you” in Hokkien – and the names of some local dishes.

The lab's five AI engineers work at the innovation 4.0 building on NUS' Kent Ridge campus.

Mr Tan Kok Yam, deputy secretary of the Smart Nation and Digital Government Office, said: “The Government is keen to harness artificial intelligence to serve our citizens better. GovTech is collaborating with AISG to develop solutions that can improve planning and service delivery.”

Research director at research and advisory company Gartner, Mr Manjunath Bhat, said: “Multilingual speech transcription will make it easy for senior citizens and people speaking all dialects to participate in digital initiatives. Even as communication systems switch from analogue to digital, human language itself remains analogue. The new solution enables computers to speak in the language of the common person as opposed to humans learning to adapt to digital interfaces.”

Details of when, where and how the system will be trialled have yet to be announced.

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SCAN TO WATCH

See the speech recognition system in action



<http://str.sg/speech>