

Now, Robot Masseuse To Treat Back And Knee Pain!

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A technology start-up in Singapore has designed a robot masseuse that specialises in back and knee massages. Named Emma, short for Expert Manipulative Massage Automation, the robot mimics the human palm and thumb to replicate therapeutic massages such as shiatsu and physiotherapy. A technology start-up in Singapore has designed a robot masseuse that specialises in back and knee massages. Named Emma, short for Expert Manipulative Massage Automation, the robot mimics the human palm and thumb to replicate therapeutic massages such as shiatsu and physiotherapy. Emma started work on patients this week at the NovaHealth Traditional Chinese Medicine (TCM) clinic, working alongside its human colleagues – a physician and a massage therapist. Emma 3.0 – the first to go into public service is more compact than the first prototype unveiled last year. It uses advanced sensors to measure tendon and muscle stiffness, together with Artificial Intelligence (AI) and cloud-based computing to calculate the optimal massage and to track a patient's recovery over a course of treatments. Emma has been developed by AiTreat, a technology start-up incubated at Nanyang Technological University, Singapore (NTU Singapore).

The technology aims to address workforce shortages and quality consistency challenges in the healthcare industry, said Albert Zhang, an alumnus of NTU Singapore who led the development of Emma. Using Emma in chronic pain management has the potential of creating low-cost treatment alternatives in countries where healthcare costs are high, and where ageing populations have a growing demand for such treatment. Zhang said that Emma was designed to deliver a clinically precise massage according to the prescription of a qualified traditional Chinese medicine physician or physiotherapist, without the fatigue faced by a human therapist.

“By using Emma to do the labour intensive massages, we can now offer a longer therapy session for patients while reducing the cost of treatment,” said Zhang. “The human therapist is then free to focus on other areas such as the neck and limb joints which Emma can't massage at the moment,” said Zhang. Emma has a touch screen with a fully articulated robotic limb with six degrees of freedom. Mounted at the end of the limb are two soft massage tips made from silicon, which can be warmed for comfort.

Emma also has advanced sensors and diagnostic functions which can measure the exact stiffness of a particular muscle or tendon. The data collected of each patient is then sent to a server in a cloud, where AI computes the exact pressure to be delivered during the massage procedure. The AI can also track and analyse the progress of the patient, generating a performance report that will allow a physician to measure a patient's recovery using precise empirical data.

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