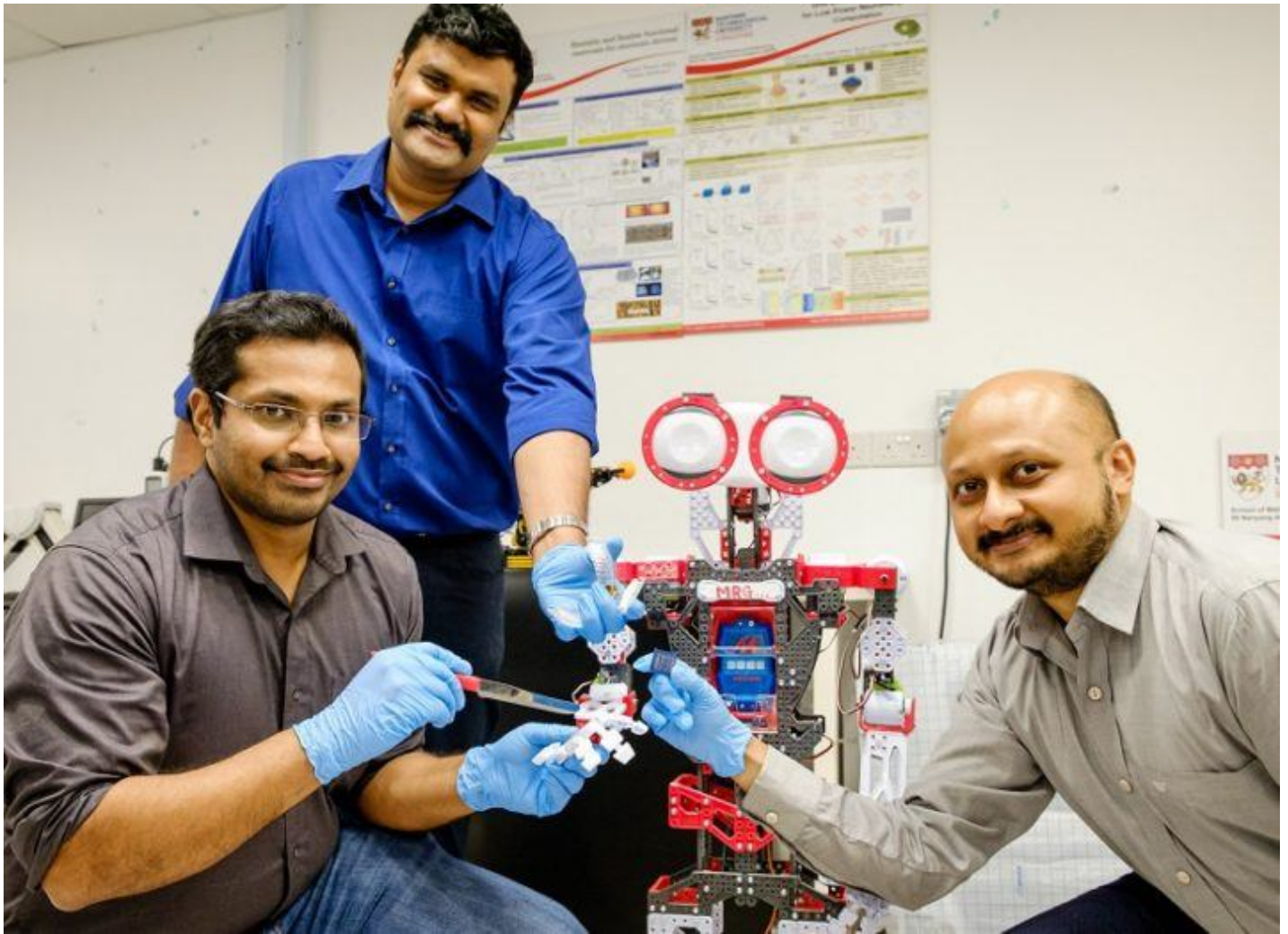


Researchers create ‘mini brains’ to allow robots to feel pain

by [Colm Gorey](#)

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Prof Nripan Mathews, Rohit Abraham John and Prof Arindam Basu. Image: NTU Singapore

This week in future tech, AI-enabled sensors built by researchers in Singapore could lead to robots that can self-heal and recognise pain.

Scientists from Nanyang Technological University in Singapore have published a paper to [Nature Communications](#) documenting their system that allows for robots to have the artificial intelligence (AI) to recognise pain and to self-repair when damaged.

This is achieved using AI-enabled sensor nodes to process and respond to ‘pain’ arising from pressure exerted by a physical force. Combined with a self-healing ion gel material, the system also enables the robot to detect and repair damage without the need for human intervention.

Rather than relying on bulky systems typically needed to send sensor data to a large central processing unit, the new system connects various AI sensors to create ‘mini-brains’ distributed on the robot’s skin. First author of the study, Rohit Abraham John, said the system is similar to how human skin heals itself after being cut.

“The self-healing properties of these novel devices help the robotic system to repeatedly stitch itself together when ‘injured’ with a cut or scratch, even at room temperature,” he said.

“In our tests, our robot can ‘survive’ and respond to unintentional mechanical damage arising from minor injuries such as scratches and bumps, while continuing to work effectively. If such a system were used with