MAGAZINE

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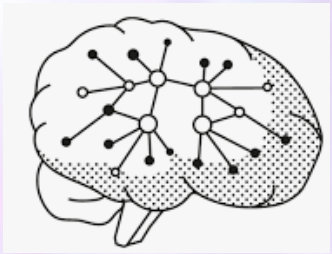
Byte Quest

Department of CSE

TEMPERATURE SENSITIVE DANCING ROBOT



INTELLIGENCE FROM NON-LIVING AGENTS

SELF HEALING SOFT ROBOT

MATERIAL THAT ADAPTS TO ITS HISTORY

Department Vision

To be a center for academic excellence in the field of Computer Science and Engineering education to enable graduates to be ethical and competent professionals.

Department Mission

To enable students to develop logic and problem solving approach that will help build their careers in the innovative field of computing and provide creative solutions for the benefit of society.

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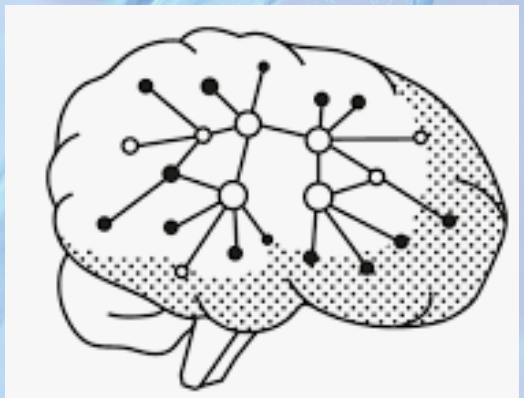
NEW ROBOT DOES 'THE WORM' WHEN TEMPERATURE CHANGES

It seems very simplistic but this is an object moving without batteries, without wiring, without an external power supply of any kind -- just on the swelling and shrinking of gel," said senior author David Gracias, a professor of chemical and biomolecular engineering at Johns Hopkins University. "Our study shows how the manipulation of shape, dimensions and patterning of gels can tune morphology to embody a kind of intelligence for locomotion.

MODEL SHOWS HOW INTELLIGENT-LIKE BEHAVIOR CAN EMERGE FROM NON-LIVING AGENTS



A new model by a team of researchers led by Penn State and inspired by Crichton's novel describes how biological or technical systems form complex structures equipped with signal-processing capabilities that allow the systems to respond to stimulus and perform functional tasks without external guidance. The novel inspired Aronson to study the emergence of collective motion among interacting, self-propelled agents.

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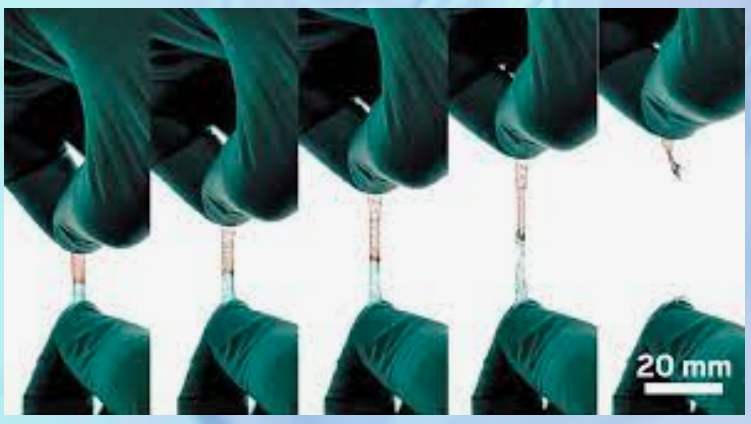
SELF HEALING SOFT ROBOT

Cornell University engineers have created a soft robot capable of detecting when and where it was damaged -- and then healing itself on the spot.For self-healing to work, Shepard says the key first step is that the robot must be able to identify that there is, in fact, something that needs to be fixed.To do this, researchers have pioneered a technique using fiber-optic sensors coupled with LED lights capable of detecting minute changes on the surface of the robot.They have similar properties to human flesh," Shepherd said. "You don't heal well from burning, or from things with acid or heat, because that will change the chemical properties. But we can do a good job of healing from cuts. The electrical response depends on the history of the magnetic field. The electrical behaviour was also different if the magnetic field was increasing or decreasing.The researchers were able to accomplish something similar with their magnetic beads, even though the mechanism is totally differently. When they exposed the beads to a quickly pulsing magnetic field, the material became better at conducting electricity, whereas slower pulsing made it conduct poorly.



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NEXT GENERATION MATERIAL THAT ADAPTS TO ITS HISTORY

Inspired by living systems, researchers have developed a new material that changes its electrical behavior based on previous experience, effectively giving it a basic form of adaptive memory. Such adaptive materials could play a vital role in the next generation of medical and environmental sensors, as well as in soft robots or active surfaces.

it does so by effectively giving it a basic form of adaptive memory. Such adaptive materials could play a vital role in the next generation of medical and environmental sensors, as well as in soft robots or active surfaces.

The researchers synthesised micrometre-sized magnetic beads which were then stimulated by a magnetic field. When the magnet was on, the beads stacked up to form pillars. The strength of the magnetic field affects the shape of the pillars, which in turn affects how well they conduct electricity.

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