China Skin Micro-Electric Network

What is the world's first bio-inspired electronic skin?
A team of Chinese scientists has created the world's first bio-inspired electronic skin with a 3D structure that mimics three mechanical signals found in human skin. With its intricate 3D distribution, sensory receptors in human skin adeptly perceive external forces and strain.

What is 3D architected electronic skin?
We report a three-dimensionally (3D) architected electronic skin (denoted as 3DAE-Skin) with force and strain sensing components arranged in a 3D layout that mimics that of Merkel cells and Ruffini endings in human skin.

Why do we need electronic skins?
Electronic devices that monitor human health,track movement and activities,and function as HMIs are already in widespread use 1,2,4. However,the goal of these electronic skins is to emulate the features of skin while still preserving its natural qualities5,6,7.

Is 3D architected electronic skin bioinspired?
We report a bioinspired designof 3D architected electronic skin (denoted as 3DAE-Skin) adopting a skin-like multilayer construction,where force and strain sensing components are arranged in a 3D layout that mimics that of Merkel cells and Ruffini endings in the skin (Fig. 1A).

How e-skin mimics human skin?
With its intricate 3D distribution,sensory receptors in human skin adeptly perceive external forces and strain. By mimicking this spatial distribution,researchers from Tsinghua University developed an e-skin that replicates the structure of human skin,featuring its own "epidermis","dermis" and "subcutaneous tissue".

How does an electronic skin work?
In healthy living skin,mechanical receptors sense information and convert it into electrical pulses that are transmitted through the nervous system to the brain. To replicate this,an electronic skin needs sensors and integrated circuits,which are usually made from rigid semiconductors.

Scientists at Tsinghua University in China have achieved a breakthrough in artificial skin technology, developing the world"s first "electronic skin" with a bionic three ...

Science China Materials - Ionic skin (I-skin) is an emerging skin-inspired sensor that has received increasing interest for the next-generation wearable electronics. ... The ionic ...

There is growing recognition that the developments in piezoresistive devices from personal healthcare to

artificial intelligence, will emerge as de novo translational success in electronic ...

1 Introduction. The skin is the largest sensory organ in humans, serving multiple functions such as protection and sensation. [1-3] It functions as the body"s paramount natural ...

Electronic skin (e-skin) is widely studied for its ability to detect physiological information and provide feedback through electrical signals. Biocompatible stimulus-responsive DNA-based hydrogels exhibit high sensitivity, which ...

Electronic skin (e-skin), which is an electronic surrogate of human skin, aims to recreate the multifunctionality of skin by using sensing units to detect multiple stimuli, while keeping key features of skin such as low ...

However, it is difficult to fabricate large-scale bionic shark skin surface with high precision and low cost. The real shark skin micro-riblets were first measured and ...

that e-skin will display more advanced and convenient features than existing health-monitoring devices. Future e-skin shall be able to sense external stimuli and in turn crosstalk with the ...

skin microbial network at both the population and individual levels; this fragile micro-biome network mediated the skin"s physiological responses to pollution, thus damag-ing skin health, ...

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ARTICLE Skin-inspired highly stretchable and conformable matrix networks for multifunctional sensing Qilin Hua 1,2,3, Junlu Sun1, Haitao Liu1, Rongrong Bao1,2, Ruomeng Yu 4, Junyi ...

Multifunctional supramolecular ultra-tough bionic e-skin with unique durability for human-machine interaction in complex scenarios still remains challenging. Herein, we develop a skin-inspired ...

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