

## **CMOS Technology Enabled Physically Stretchable-Reconfigurable-Spherical Electronic System**

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CMOS technology and electronics are rigid and bulky. Their applications are focused on computation-communication-infotainment. Scaling down their dimensions has been enabling their triumph. However, what about larger area applications? How about a singular gadget whose size can be reconfigured without any compromise in their functionality? How about spherical solar cell or imaging system? Is it possible that display can be stretched without compromising its resolution? What daily life application can we think for stretchable electronics?

To address these important questions, inspired by nature, we are redesigning conventional CMOS electronics into physically flexible-stretchable-reconfigurable-spherical electronic system to redefine their purposes. We integrate heterogeneous materials (classical crystalline and novel 1D/2D) and processes (state-of-the-art CMOS technology and emerging processes) through robust manufacturable processes to develop physically flexible, stretchable and reconfigurable standalone biocompatible CMOS electronic system. We also observe that mechanical deformation during their intended applications may fundamentally impact the electrical performance and reliability of such system. From application perspective, we are gradually using machine learning to incorporate AI and robotics into these electronic systems to make them interactive. Some nature inspired examples and applications will be demonstrated which are focused on healthcare, energy and infotainment to offer broader scopes for such electronics.