



RS Components: Technology inspired by Nature

Technology type	Description	Source
Insect eyes inspire new solar cell design	Packing tiny solar cells together, like micro-lenses in the compound eye of an insect, could help scientists overcome a major roadblock to the development of perovskite photovoltaics.	https://www.sciencedaily.com/releases/2017/08/170831
Engineers develop a programmable 'camouflaging' material inspired by octopus skin	Engineers at Cornell University report on their invention of stretchable surfaces with programmable 3D texture morphing, a synthetic 'camouflaging skin' inspired by studying and modeling the real thing in octopus and cuttlefish. The engineers, along with collaborator and cephalopod biologist Roger Hanlon of the Marine Biological Laboratory (MBL), Woods Hole, report on their controllable soft actuator in the October 13 issue of Science.	https://www.sciencedaily.com/releases/2017/10/1710121
Bee's hive mind grid	Bees living in a hive instinctively know what jobs need doing and they get done. Regen Energy in the US adapted this 'swarm logic' to improve the efficiency of energy grids. Instead of using a central system to redirect power loads, the company uses wireless local controllers to direct power more efficiently.	http://bio-inspiredd.blogspot.com/2016/01/hive-mind-ma
Gecko Skin	The secret to a gecko's gravity-defying grip turns out to be the rows of tiny hairs, called setae, on its toes. In recent years engineers have managed to reproduce similar setae from silicone, leading to myriad variations of gecko-skin technology. Among them are a gizmo to allow humans to climb a sheer glass wall, robots able to pull objects hundreds of times their own weight, and grippers for space repairs.	https://geckskin.umass.edu/
Shark skin	A shark's skin has scales that are like tiny teeth made of a material called dentin. These scales create vortices in the water that cut drag while also preventing the attachment of barnacles and other organisms, called bio-fouling. Not surprisingly, the U.S. Navy has invested in developing similar coatings, and researchers from the University of Applied Sciences in Bremen, Germany, have developed a "synthetic shark skin" from elastic silicone that cuts bio-fouling by 67 percent.	https://www.biospace.com/article/7-cool-examples-of-h
Cat Tongue Grooming Brushes	Researchers at Harvard University recently published a study in the journal PNAS, describing the structure of a cat's tongue. Which is undoubtedly exciting for the cats, who are one of nature's "most fastidious groomers," but has resulted in a possible commercial product called the TIGR (the Tongue-Inspired Grooming) brush.	https://www.nationalgeographic.com/animals/2018/11/u
Slug Mucus and Life-Saving Surgical Superglue	Engineers are looking to mimic slug mucus, as it has the sticking power of superglue, it's highly stretchable, biocompatible (our bodies don't reject it), stretchy as a rubber band and so sticky it can reconnect wet pieces of heart or lungs back together.	https://biomimicry.org/the-future-of-innovation-is-here-8
Wind Turbines Inspired by Humpback Whales	The bumpy ridges on humpback whale flippers actually help them increase lift and reduce drag at the same time, and experts have found that after adding this saw-like design to wind turbines, wind farms use 25% less energy to produce 20% more power.	https://biomimicry.org/the-future-of-innovation-is-here-8