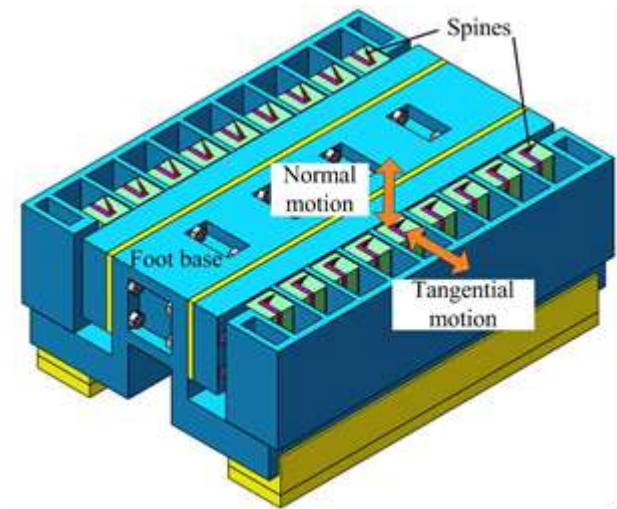


Design of a Spiny Foot with Fluid-filled Sacs for Climbing Robots

Yanwei Liu, Xiang Huang, Hao Pan, Shujuan Li, Pengyang Li
School of Mechanical and Precision Instrument Engineering,
Xi'an University of Technology, China.

- The spiny foot was inspired by the fluid-filled sac in gecko's foot for force distribution.
- All spines' tangential and normal motion of are actuated by two fluid-filled sacs respectively.
- The spiny foot is capable of adapting to the complex topography of rough wall surfaces.
- The spiny foot prototype is able to carry 540 g extra payload on inverted rough surfaces.



Spiny foot with spines actuated by fluid-filled Sacs.