Supplementary Information

A Facile and Novel Design of Multifunctional Electronic Skin Based on Polydimethylsiloxane with Micropillars for Signal Monitoring

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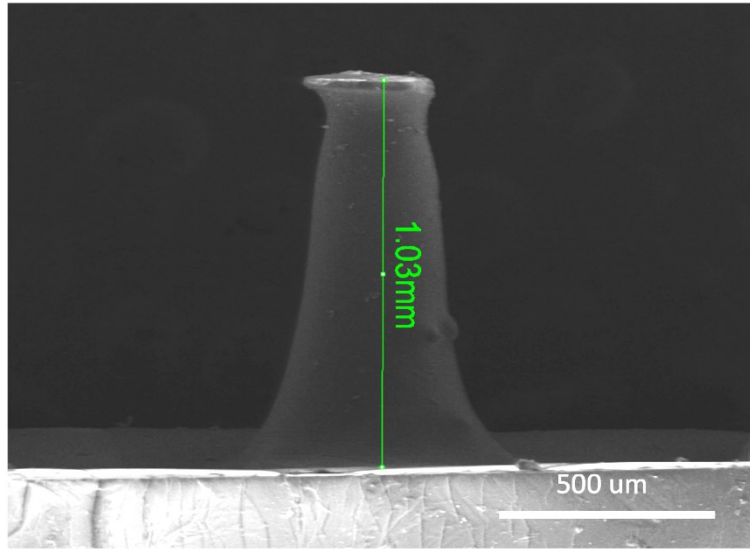
E-mail: zzlxia@cqu.edu.cn, kaiyong_cai@cqu.edu.cn

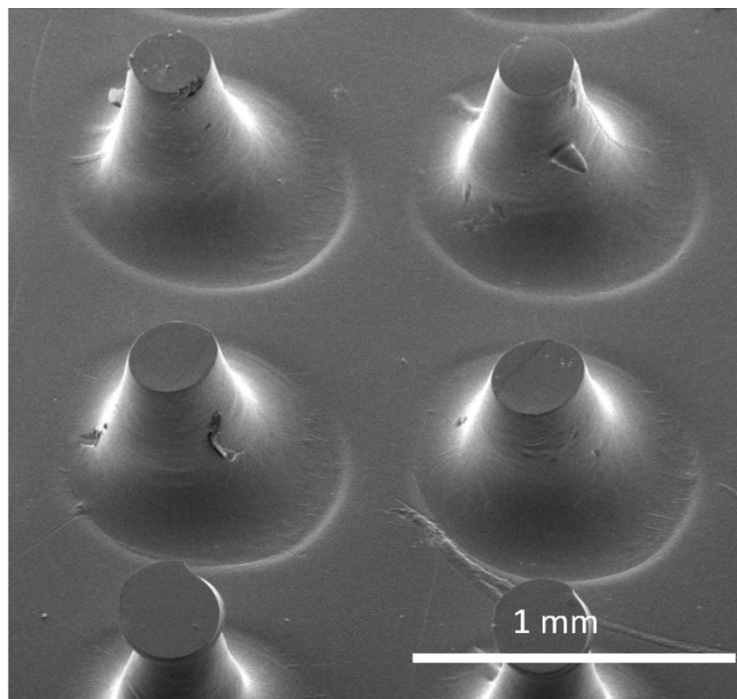**Fig. S1** The cross-sectional SEM image of a micropillar.

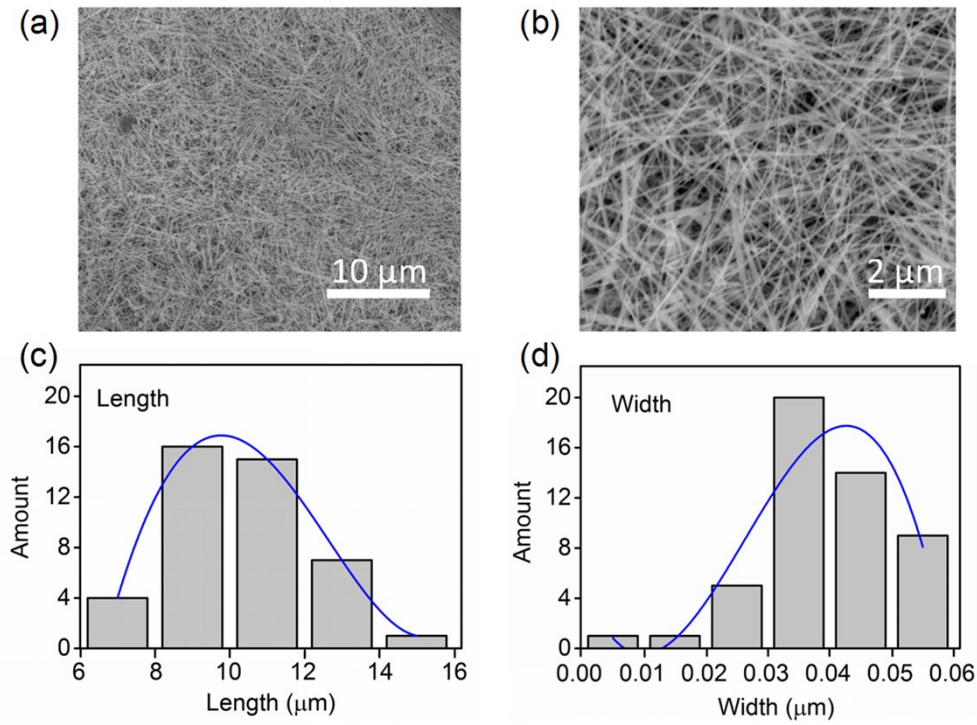**Fig. S2** The 5-angle top-view SEM image of the micropillars.

Fig. S3 SEM images of AgNWs with larger scales as (a) scale bar 10 µm and (b) scale bar 2 µm. The nonlinear fitting distribution curves of (c) length and (d) width values of AgNWs.
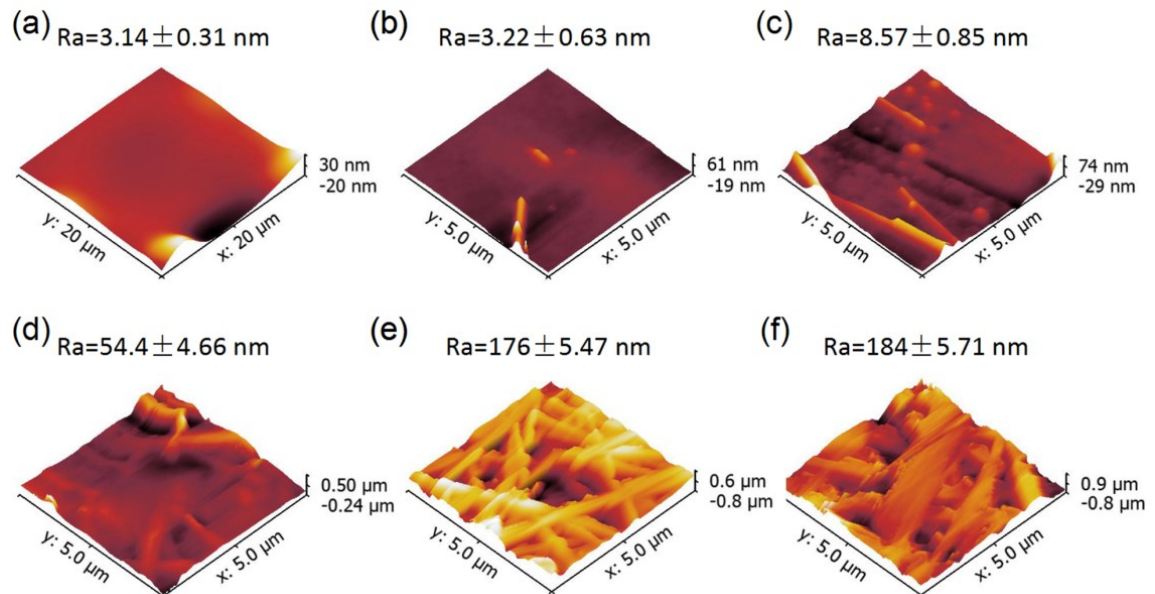

Fig. S4 AFM images of (a) plain PDMS and PDMS coated with (b) 1 layer, (c) 2 layers, (d) 3 layers, (e) 4 layers, and (f) 5 layers of AgNWs.
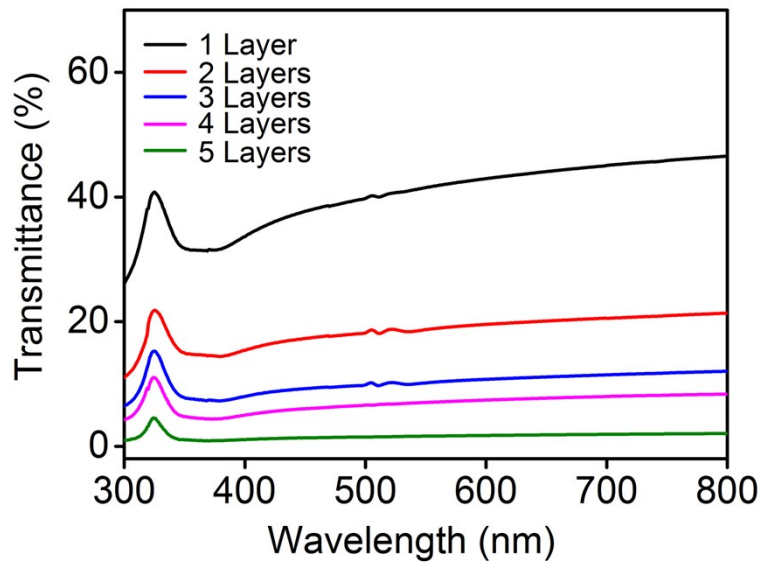
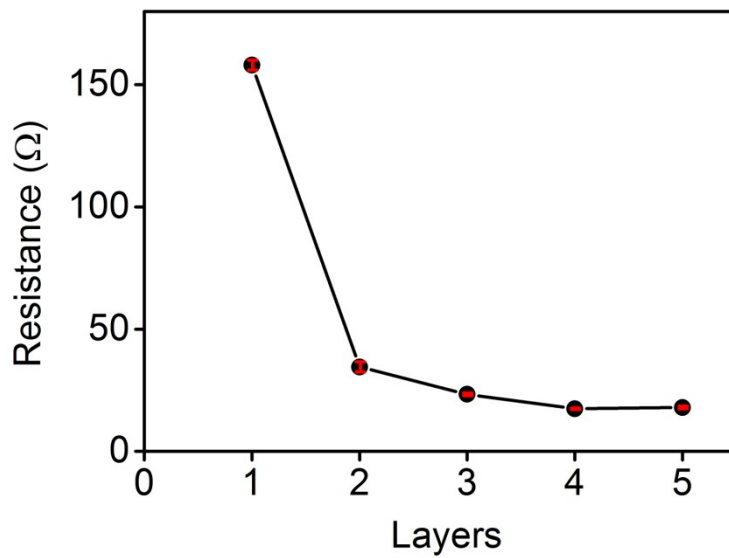**Fig. S5** The optical transmittances of substrates with various layers of AgNWs.

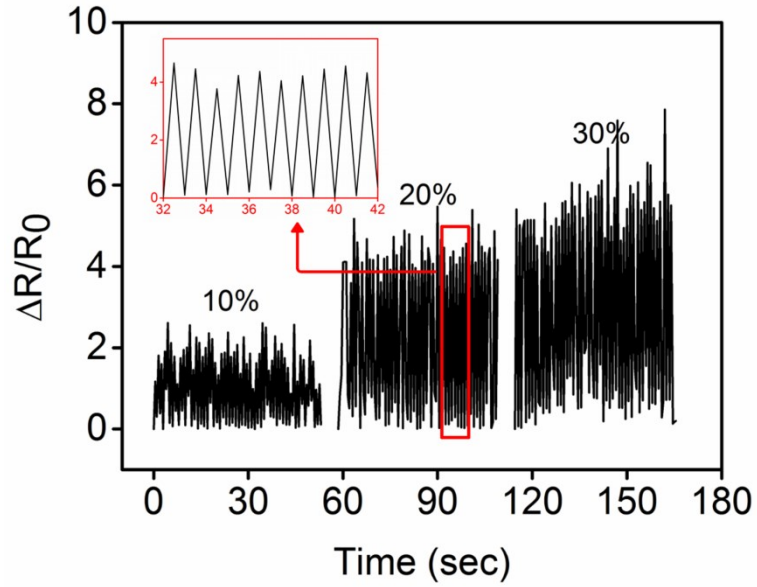**Fig. S6** The resistances of substrates with various layers of AgNWs.

Fig. S7 The normalized electrical resistance changes (ΔR/R$_o$) of the e-skin under cyclic mechanical stretching and releasing at the rate of 1 Hz with strain as 10%, 20%, and 30%, respectively.
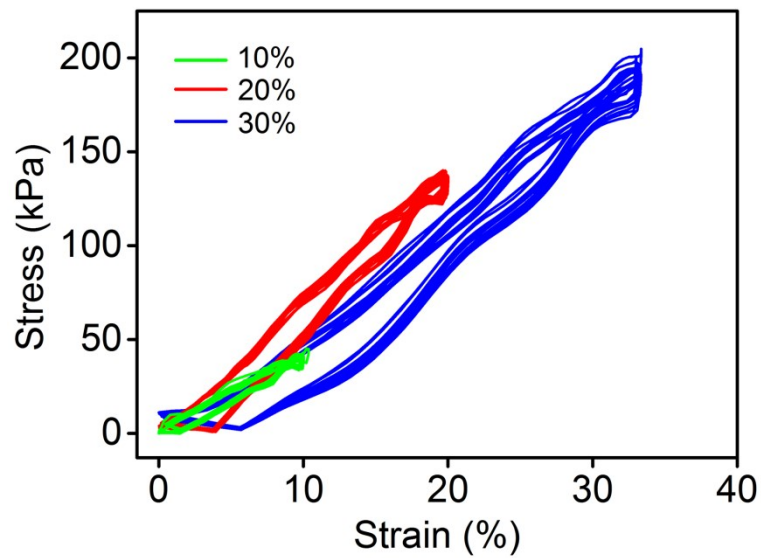

Fig. S8 The stress-strain curves of e-skin with different mechanical strains.

Table S1 The response ranges and sensitivity values of e-skins.

Elements	Parameter	Response range	Sensitivity	R^2
Bottom radii	100 μm	0-100%	0.136	0.997
	150 μm	0-100%	0.09	0.978
	200 μm	0-100%	0.066	0.932
	250 μm	0-100%	0.043	0.955
	300 μm	0-130%	0.0159	0.99
Spacing	600 μm	0-90%	0.084	0.961
	800 μm	0-100%	0.085	0.991
	1000 μm	0-100%	0.136	0.997
	1200 μm	0-100%	0.113	0.998
	1400 μm	0-100%	0.092	0.993
Geometric arrays	hexagon	0-100%	0.147	0.999
	square	0-100%	0.136	0.997
	central square	0-100%	0.105	0.995
	triangle	0-100%	0.088	0.97