Supporting Information:

Supersensitive All-Fabric Pressure Sensors Using Printed Textile Electrode Arrays for Human Motion Monitoring and Human-Machine Interaction

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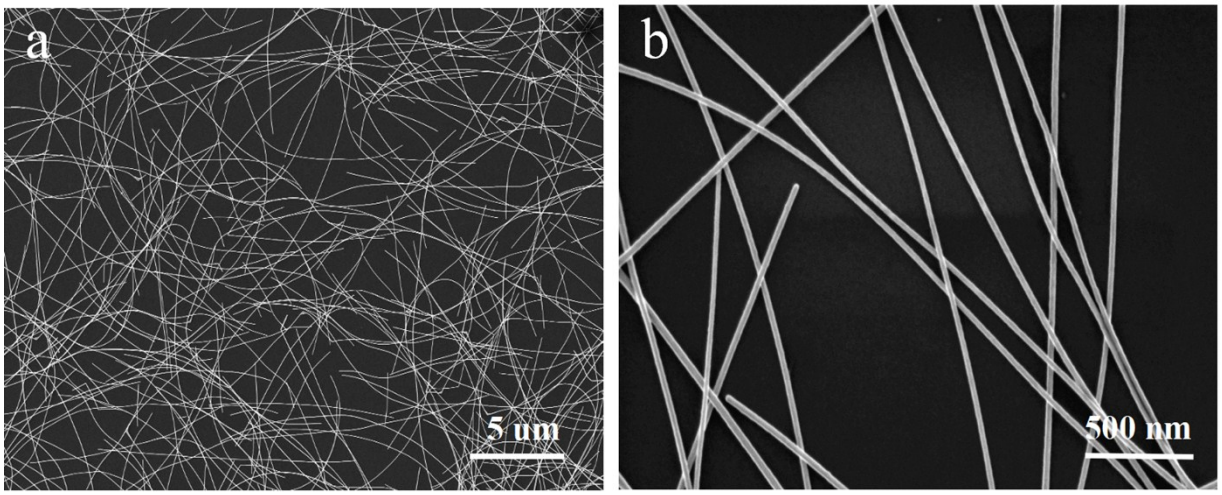


Fig. S1. SEM images of AgNWs with different magnifications (a,b).

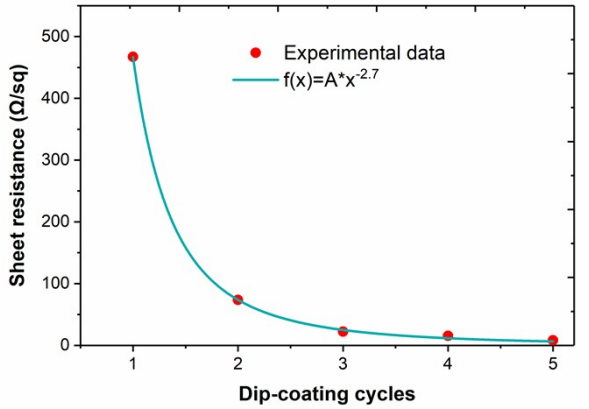
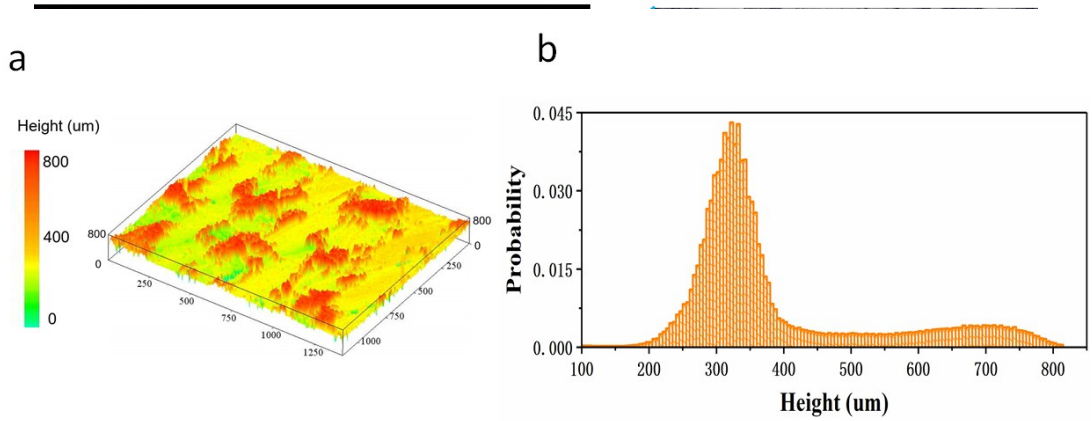


Fig. S2. The sheet resistance of AgNWs-decorated cotton with different dip-coating cycles.



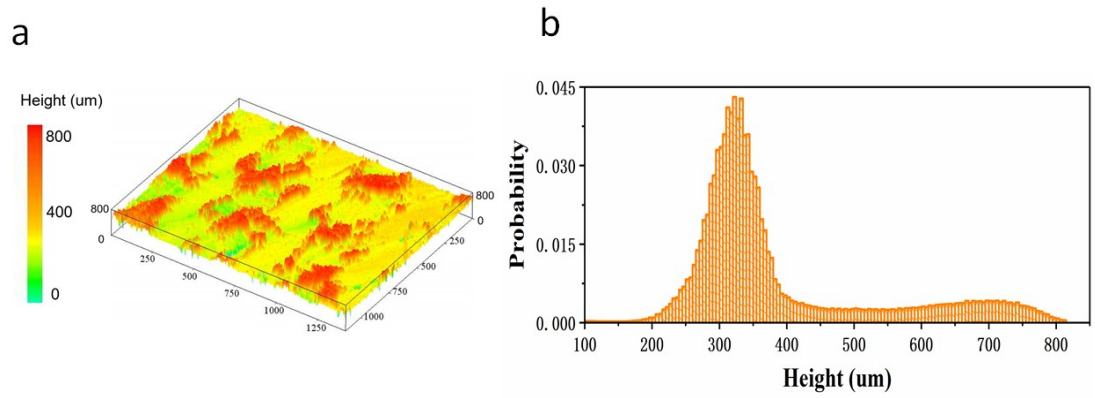


Fig. S4. (a) 3D morphology of the AgNWs-coated cotton. (b) The height distribution of the rough surface.

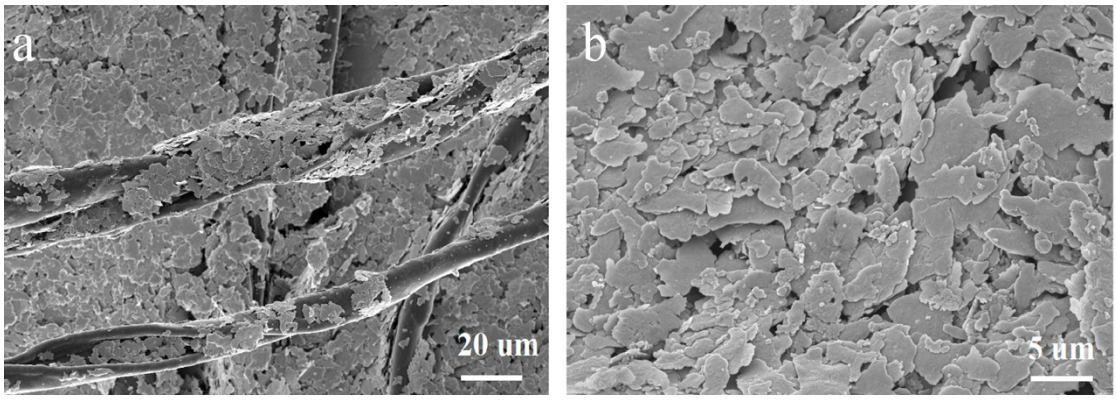


Fig. S5. (a, b) SEM images of Ag-coated on cotton substrate with different magnifications.

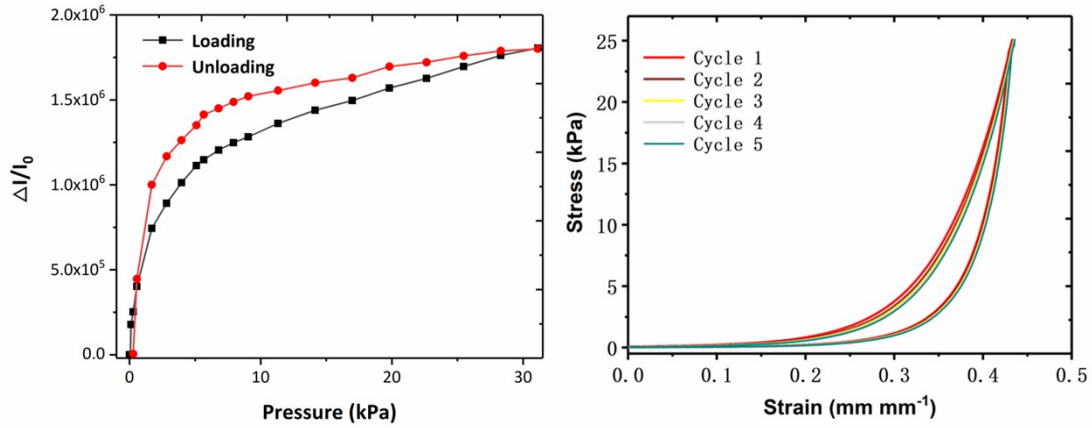


Fig. S6 (a) Loading-unloading transfer curves of our pressure sensor. (b) Five consecutive compression tests on the AgNWs-coated cotton.

To assess the mechanical properties of the conductive fabric, we measured the compressive stress as a function of strain. An effective elastic modulus (E_{eff}) was defined as the slope of the stress values strain plot, and the AgNWs-decorated cotton showed a very low E_{eff} at a low-pressure regime and subsequently increased with compression. The E_{eff} at 5 kPa was 85.82 kPa, which is lower than the typical low-modulus elastomer previous reported, such as PDMS and PPy hydrogels(about 200 kPa)[4].

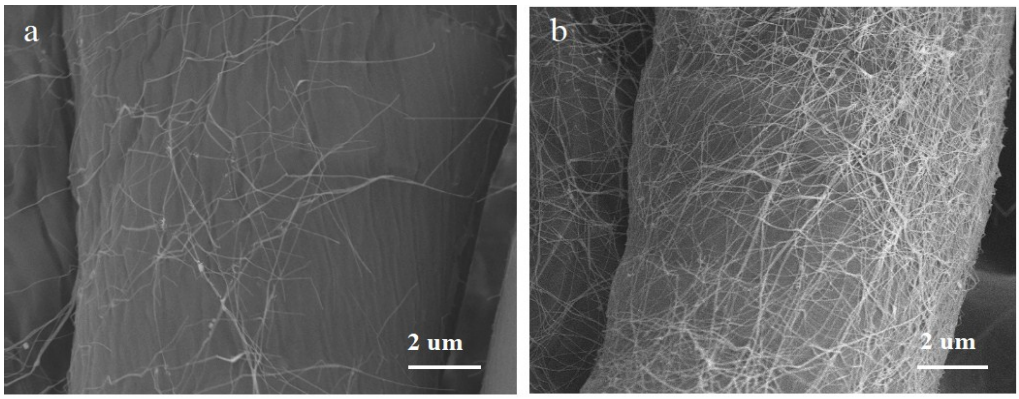


Fig. S7 (a) SEM of AgNWs-coated fiber with 1 dip-coating cycle. (b) SEM of AgNWs-coated fiber with 5 dip-coating cycles.

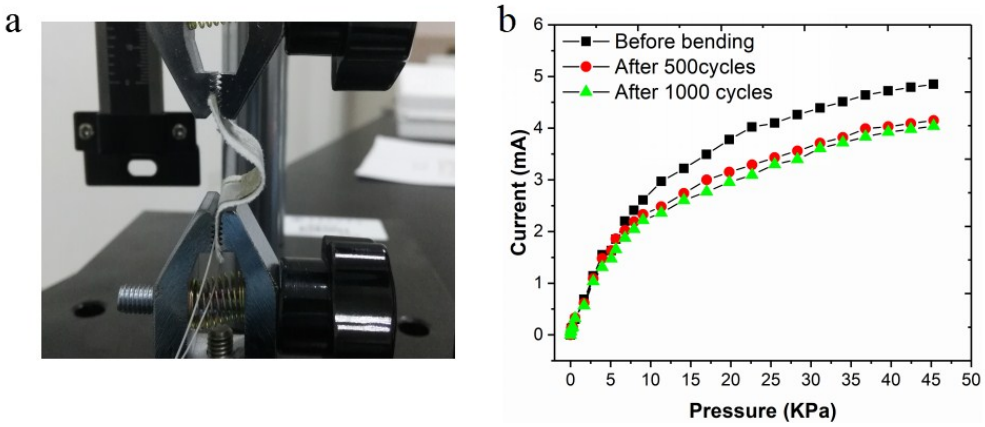


Fig. S8. (a) The photograph of the bent device. (b) The performance of the pressure senor after 1000 bending cycles.

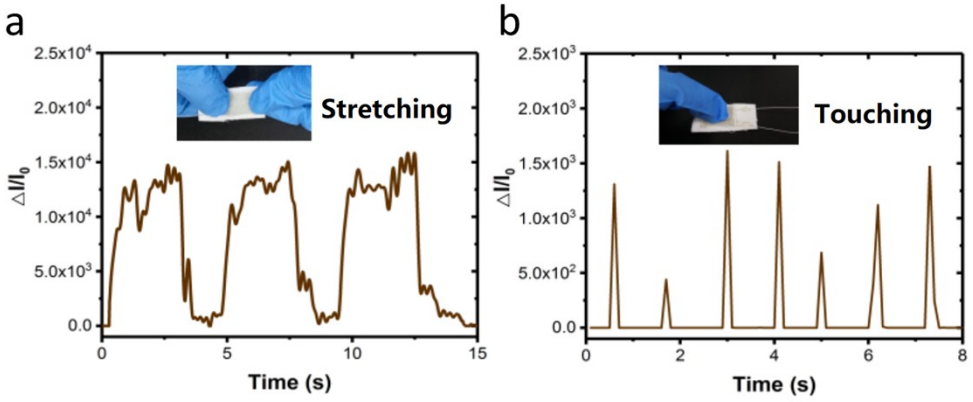


Fig. S9. Digital photographs and current signal responding to mechanical stimulus for several loading/unloading cycles: (a)stretching, (b) touching.

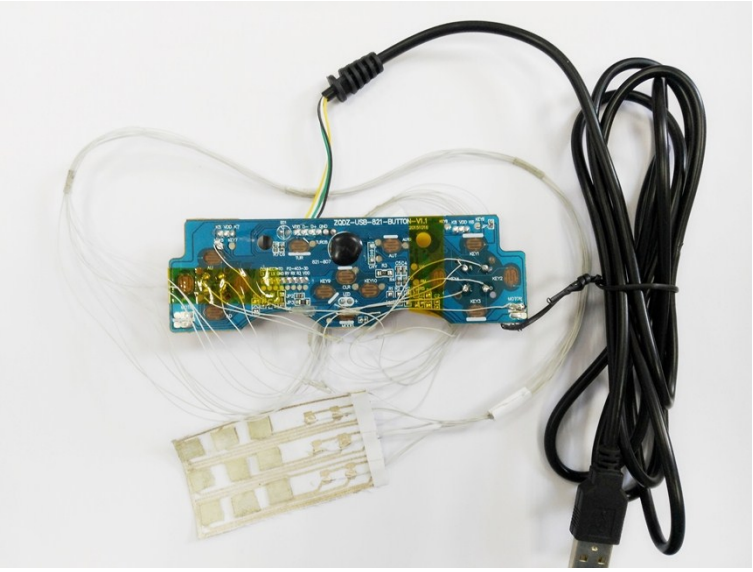


Fig. S10. Digital photograph of the hardware of human-computer interactive system.

Video S1: Sensing arrays used for human-machine interaction to play the piano.

Video S2: Sensing arrays used for human-machine interaction to play computer games.

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Table S1. Comparison of the sensitivity, detection limit, response time and power assumption of our device with those in the literature.

Device type	Materials	Switching ratio	Sensitivity（kPa^{-1}）	Detection limit	Response/ relaxation time（ms）	Operating voltage (V)	Ref.
Resistive	Textile/AgNWs/Silver paste	~10^6 (3 kPa)	~5.65*10^5	0.34 Pa	6/13	0.1	**This work**
Resistive	Textile/CNTs/Ni	100 (10 kPa)	14.4	2 Pa	18/24	<6	[1]
Resistive	Textile/AgNWs/rGo	~3.4 (3 kPa)	5.8	0.125 Pa	29.5/15.6	-	[2]
Resistive	PDMS/AgNWs /Conductive threads	~10^7 (3 kPa)	1.04×10^4 - 6.57×10^6	0.6 Pa	4/14	0.1	[3]
Resistive	PET/PPy hydrogel	~10^3 (5 kPa)	<133.1	0.8 Pa	47/-	-	[4]
Resistive	PI/Carbon-decorated fabric	~4 (10 kPa)	0.585	-	4/4	-	[5]
Resistive	PDMS/AuNWs-coated paper	~3.5 (3 kPa)	1.14	13 Pa	17/-	1.5	[6]
Resistive	PDMS/PEDOT:PSS/ PUD	~20 (4 kPa)	10.32	23 Pa	200/-	0.2	[7]
Resistive	PU fiber/AgNWs	~1.1 (5 kPa)	0.12	10 mg	35/15	-	[8]
Resistive	Cu/PAAM hydrogel	~1.5 (8 kPa)	0.35	100 Pa	-	-	[9]
Resistive	PDMS/SWNTs	~1.3 (1 kPa)	1.8	0.6	<10/-	2	[10]
Resistive	Au/PDMS/CNT/ITO/ PET/AgNWs	~500 (3 kPa)	204.4	0.2	<70/-	-	[11]
Resistive	PDMS/ZnO NWs	~5 (5 kPa)	6.8	0.6	<5/-	-	[12]
Capacitance	Textile fiber/Rubber/ AgNP	~1.5 (5 kPa)	0.210	8mg	40/10	1	[13]
Capacitance	PDMS/Ecoflex/CNTs	~1.025 (10 kPa)	0.034-0.05	0.38 Pa	63/-	-	[14]
Capacitance	PDMS/AgNWs	~2 (1 MPa)	0.00162	~2.7 g	40/-	-	[15]
Triboelectricity	PET/PDMS/EVA	-	0.006	1000 Pa	70/-	-	[16]
Piezoelectricity	PET/ZnO NWs	-	0.131	3500	150/-	1	[17]
Piezoelectricity	Au/ITO/ZnO	-	1.64	-	-	0.2	[18]

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