

Supporting Information

Hierarchical Porous Carbon-Nanotube Skeleton for Sensing Film with Ultrahigh Sensitivity, Stretchability, and Mechanical Compliance

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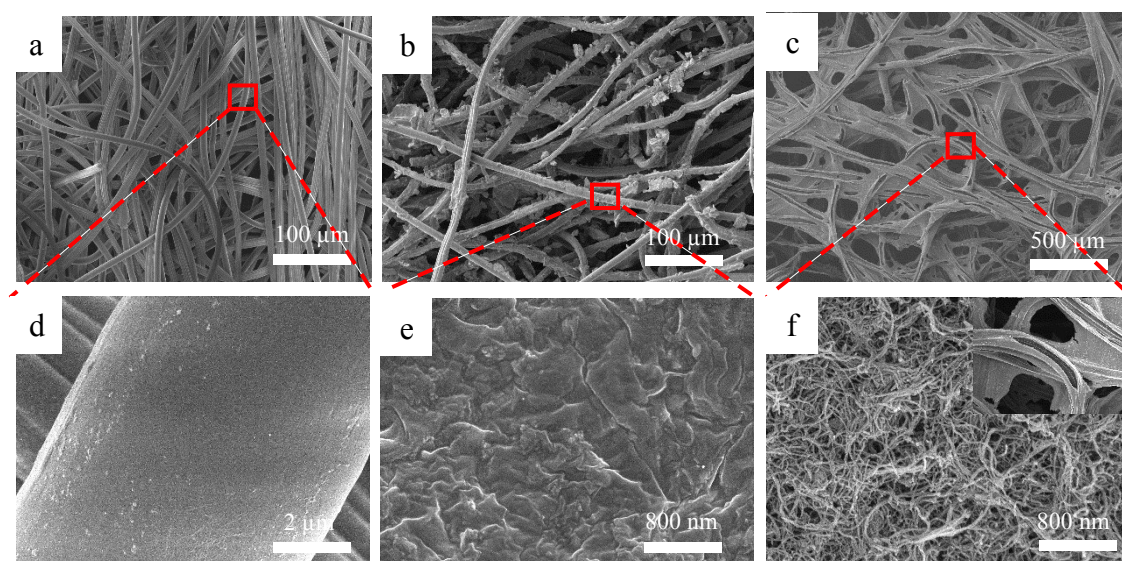


Fig. S1 SEM images of (a,d) textile template with 30 μm of thickness and made of randomly oriented cotton fibers with approximately 10 μm diameter, (b,e) cotton textile coated by CNTs and CTAB (c,f) the as-prepared CNT skeleton through microwave irradiation.

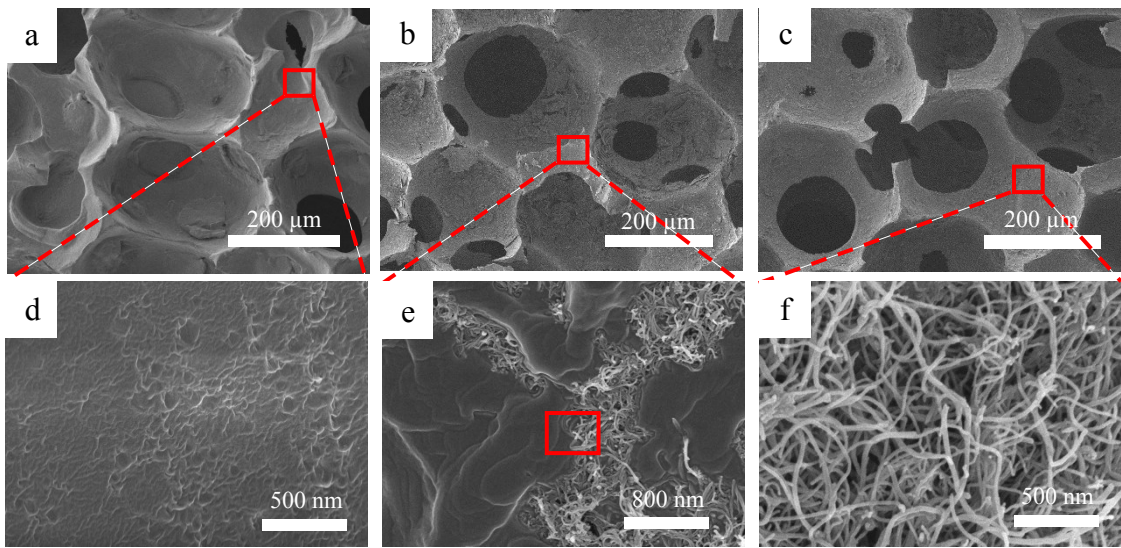


Fig. S2 SEM images of (a,d) PU foam with 6 mm of thickness, (b,e) PU foam coated by CNTs and CTAB, and (c,f) the as-prepared CNT foam through microwave irradiation.

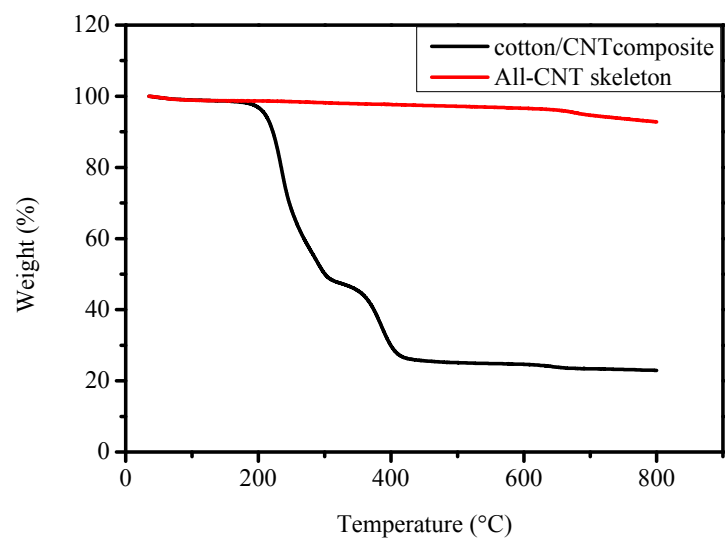


Fig. S3 Thermogravimetric curves of cotton/CNT composites and CNT skeletons.

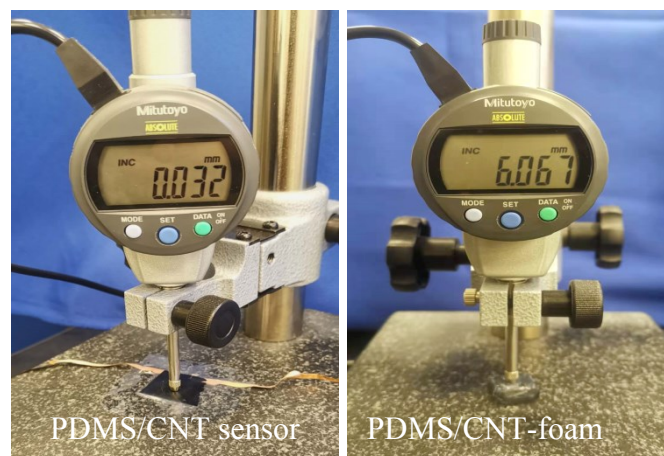


Fig. S4 Thickness (mm) of the PDMS/CNT sensor and PDMS/CNT-foam.

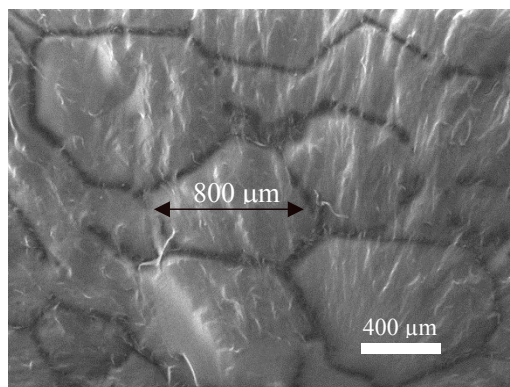


Fig. S5 Cross-section SEM image of PDMS/CNT-foam.

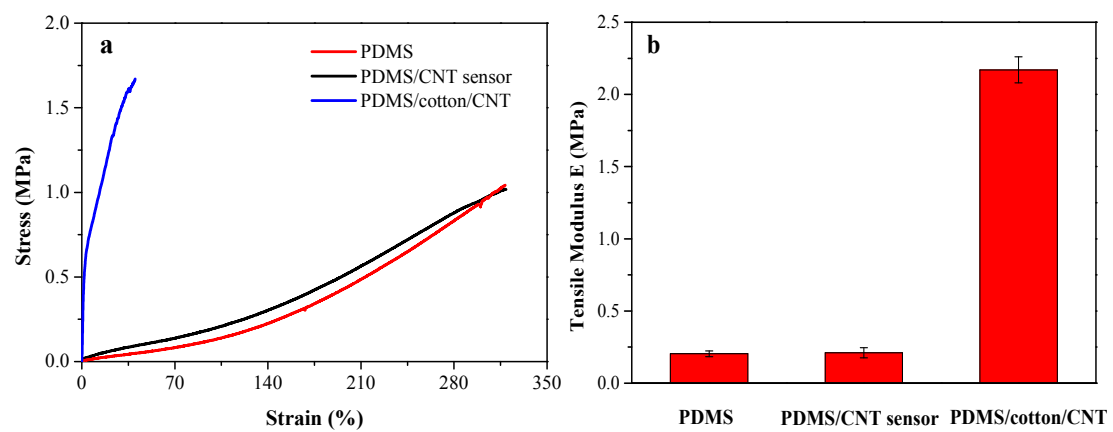


Fig. S6 (a) Stress-strain curves and (b) tensile modulus of the PDMS, PDMS/CNT sensor, and PDMS/cotton/CNT composites.

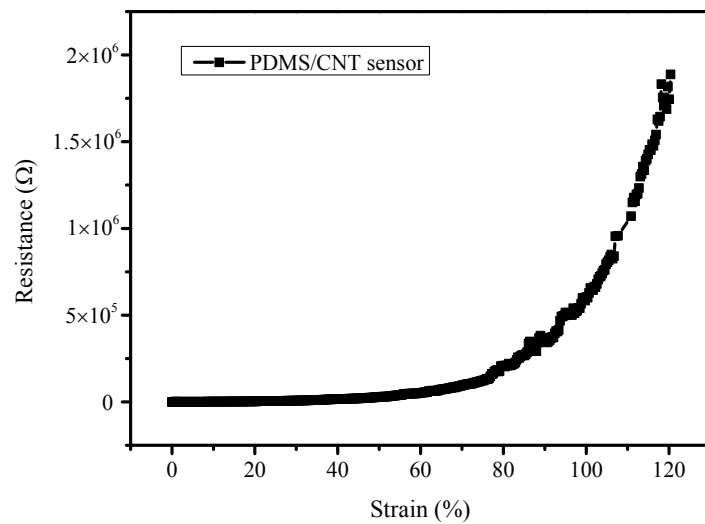


Fig. S7 Dependence of the absolute resistance of PDMS/CNT sensor on the strain.

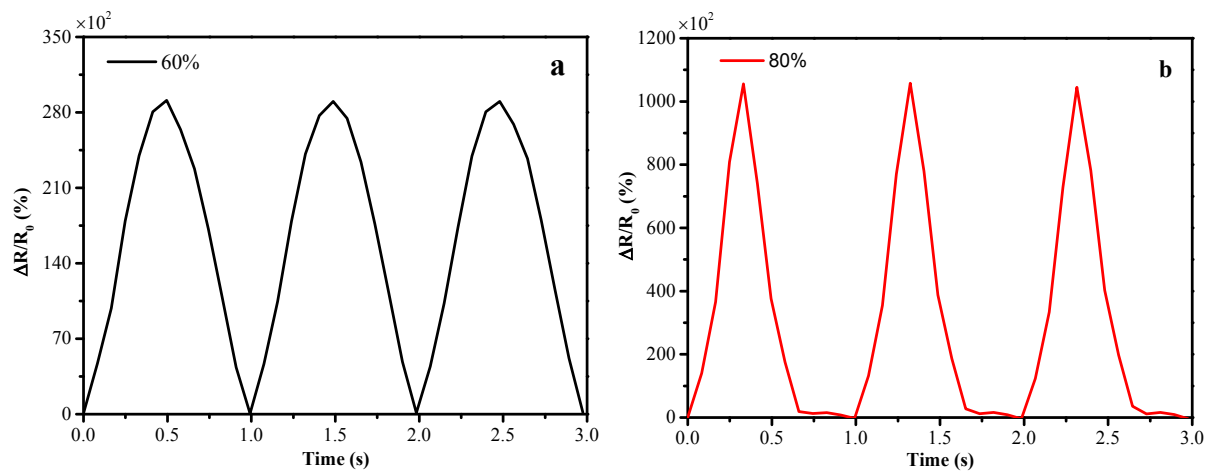


Fig. S8 (a-b) Resistance response of the PDMS/CNT sensor that was repeatedly stretched to 60% and 80% at a frequency of 1 Hz.

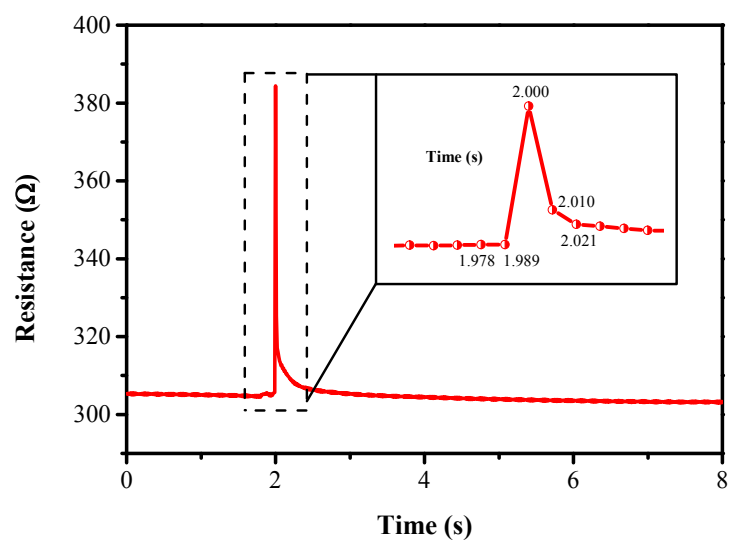


Fig. S9 Real-time fast response (< 30 ms) of the PDMS/CNT sensor to applied tiny touch.

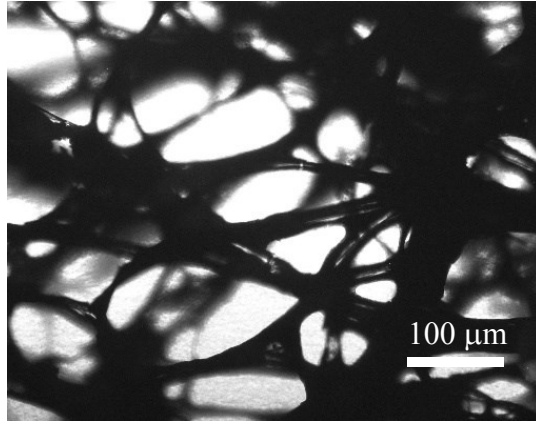


Fig. S10 Optical images of PDMS/CNT sensor under 40% strain.

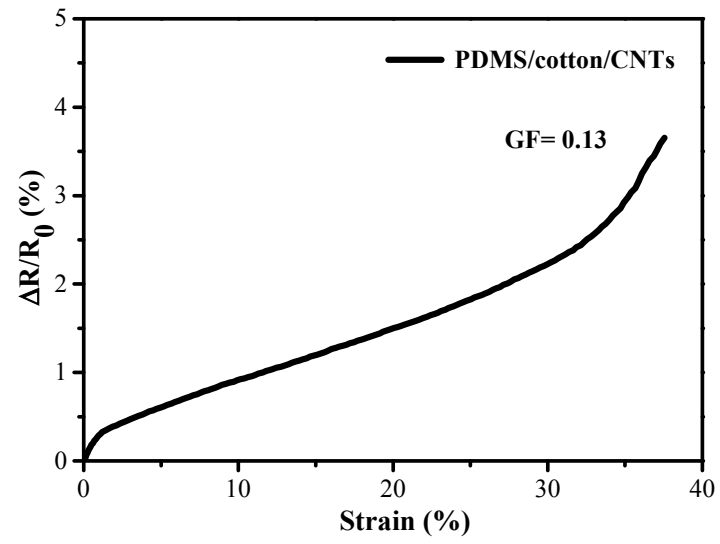


Fig. S11 Resistance response of PDMS/cotton/CNT composites to applied strains.