

## Bubble-blowing-inspired sub-micron freestanding silk film for programmable electronics

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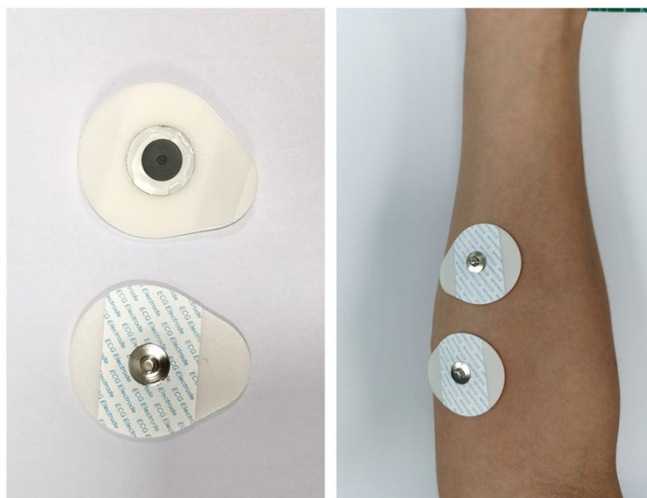


Fig. S1 photos of the commercial electrodes and their placement on the arm of a volunteer.

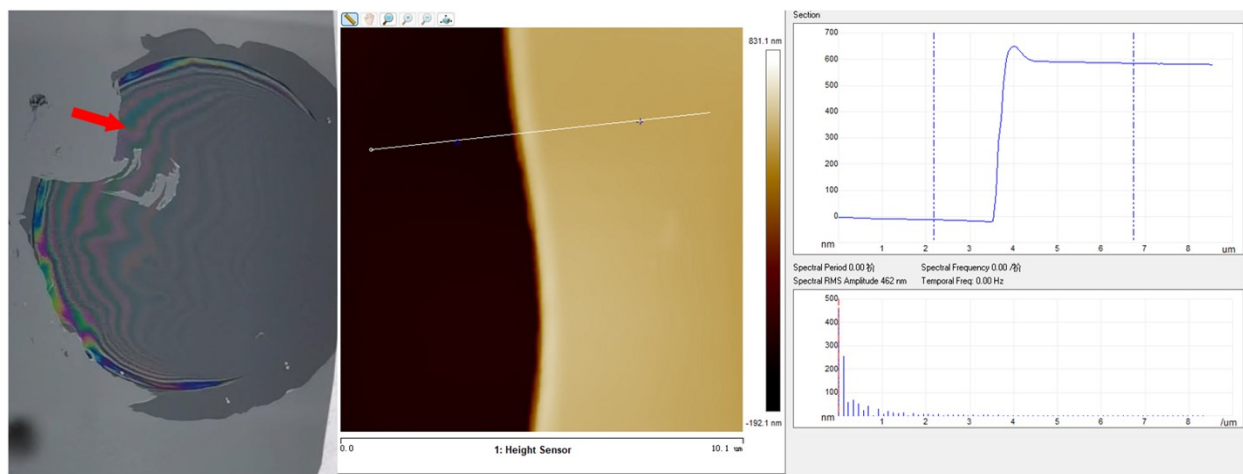


Fig. S2 Photo and AFM profile showing the thickness of the ultrathin silk film.

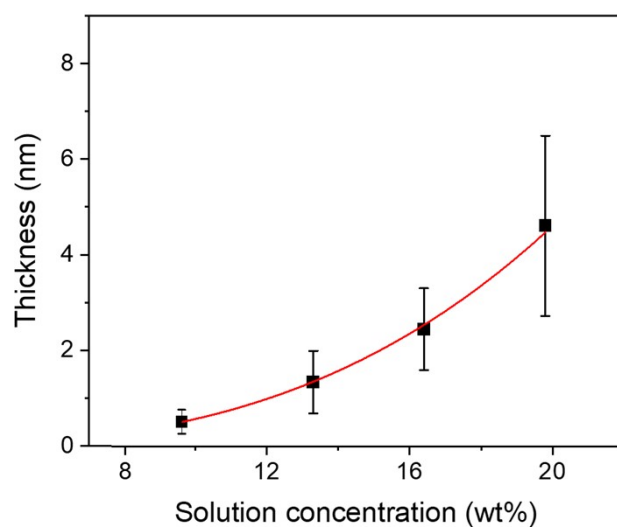


Fig S3 The thicknesses of the silk films prepared using silk fibroin solutions with different concentrations.

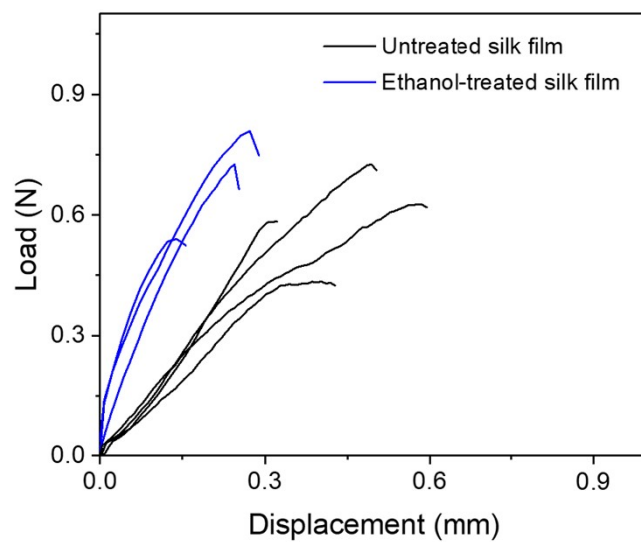


Fig. S4 Mechanical properties of the untreated and ethanol-treated silk films.

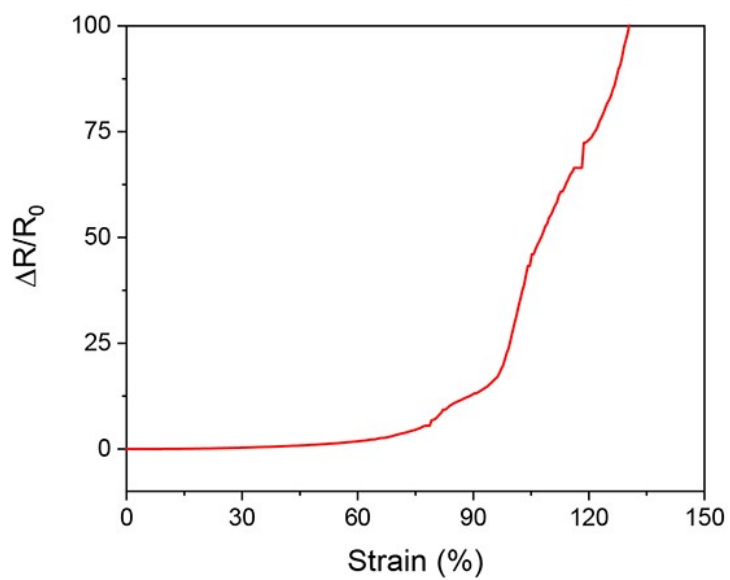


Fig. S5 Resistance change of the silk film electrode under strain.

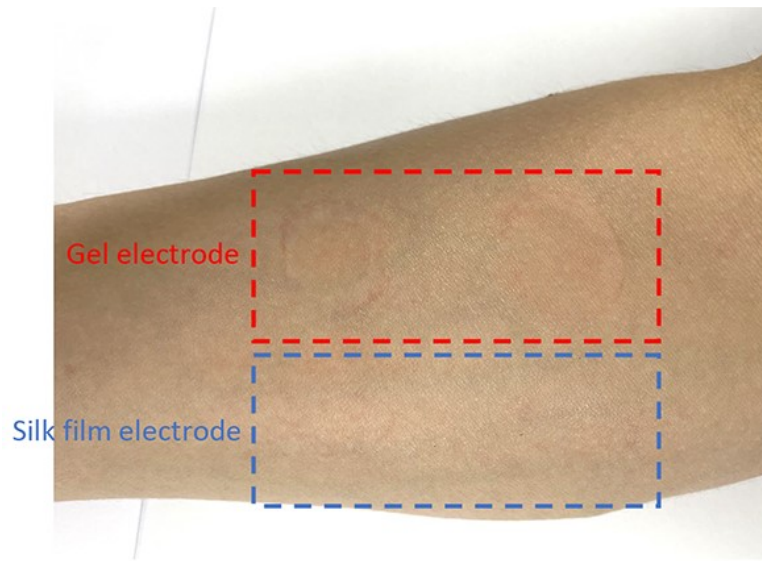


Fig. S6 Photo of the skin after wearing silk film electrodes and commercial gel electrodes for 12h.