Supporting Information

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Free-standing Graphene Fabric Film for Flexible Infrared Camouflage

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The supporting information includes:

Figure S1-13
Video S1-2
Figure S1. Sheet resistance of the G@SF after the first time LPCVD process.
**Figure S2.** Inverted LPCVD route for the fabrication of uniform G@SF. When the first-round LPCVD process finished, the rolled fabric was cooled down to room temperature. Afterwards, the rolled fabric column was pulled out and turned 180° horizontally. The gas-in side of the fabric column (white marker) was changed into the gas-out position. Then the inverted fabric column was pushed into the CVD chamber for the second-round LPCVD process.
Figure S3. Sheet resistance of the G@SF with different graphene film thickness.
Figure S4. Photo of the soft wet graphene fabric film on water after the SiO$_2$ substrate was etched.
Figure S5. (a) The schematic illustration of a graphene fiber collapsing into a graphene ribbon after the SiO$_2$ substrate was etched. (b) Corresponded sectional diagram.
**Figure S6.** Bending test of FS-GFF with a bending radius of 3 cm for 12 cycles.
Figure S7. (a) Measurement of the electrical conductivity of FS-GFF rewet by various organic solutions (1μL). (b-c) SEM images of compact graphene ribbons (b) and dispersive graphene ribbons (c).
Figure S8. Sheet resistance of the FS-GFF under multiple rewetting and drying cycles.
Figure S9. Infrared emissivity of FS-GFF and other natural materials.
Figure S10. Low emissivity shaped objects with/without FS-GFF and their images under infrared camera.
Figure S11. Scheme for the infrared camouflage mechanism of the FS-GFF device. Under a voltage bias, the ionic liquid intercalates into the graphene layers and dopes them. As a result of doping, the charge density of graphene increases and the Fermi-level shifts to higher energies. Thus, the adsorption of photons would be strongly suppressed, leading to a weaker infrared light absorption and emission of the FS-GFF electrode.
Figure S12. Infrared camouflage ability of the AIC textile device on human finger.
**Figure S13.** Fabrication of infrared camouflage on vehicle model. Cellulose paper was used as a spacer. Sputtered gold was adhered to the back side of the separator layer as D-low electrode (2). After the gold electrode were fixed, the un-finished textile was adhered on the vehicle model and two copper electrodes was fixed on the front side of the separator layer as U-high and U-low electrodes (3). Then by a rewetting process, the FS-GFF was attached to the top of separator layer (4).