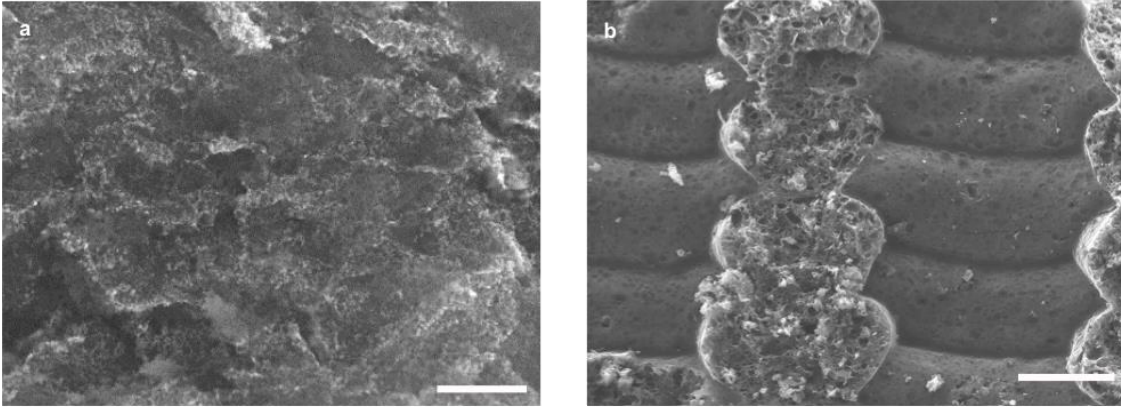
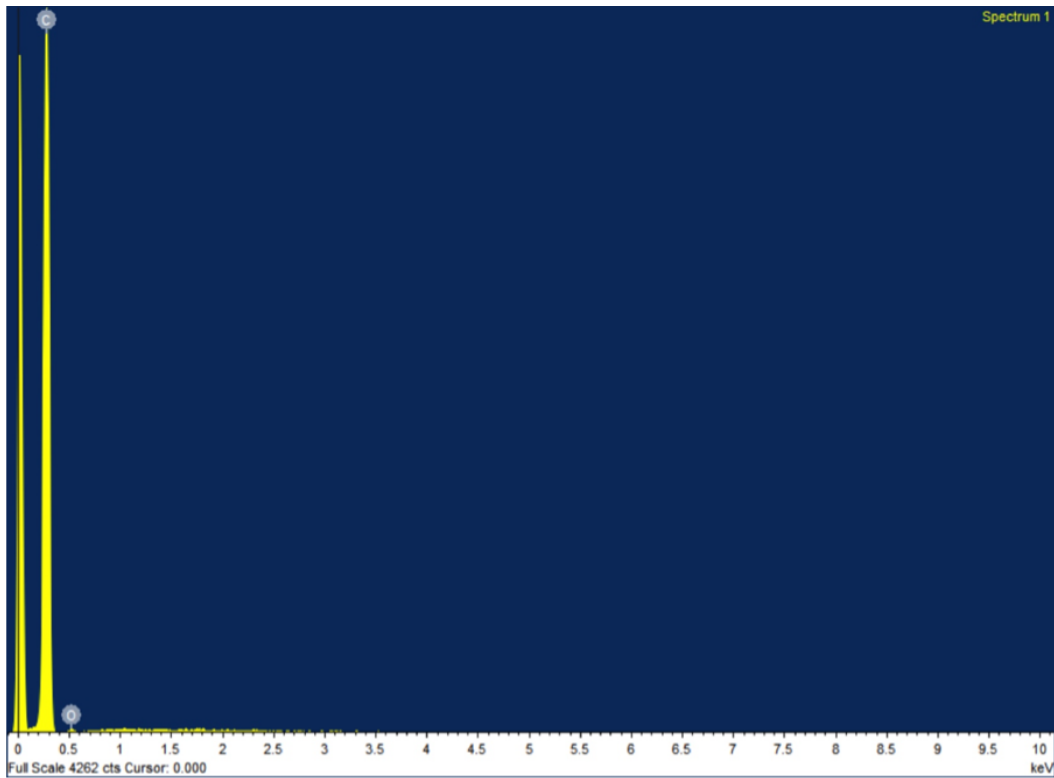


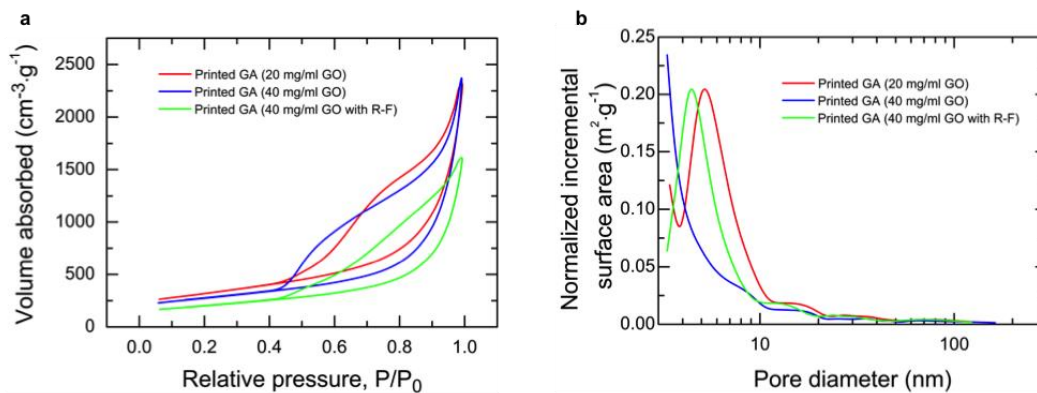
## Supplementary Figures



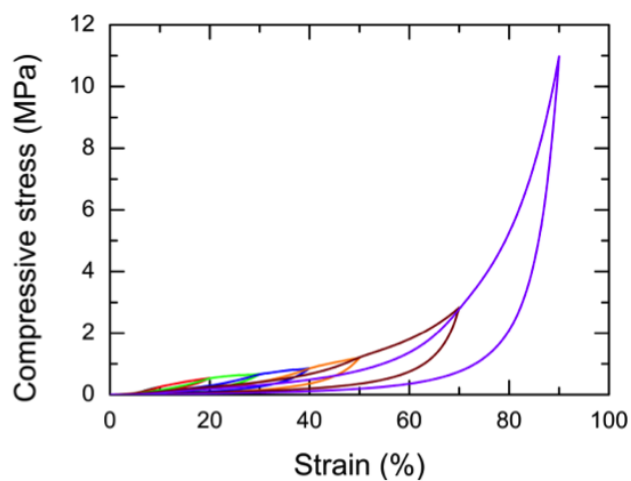
**Supplementary Figure 1.** (a) SEM image of 3D printed graphene before etching and (b) after etching the silica nanoparticle filler. Scale bar, (a) 1 μm (b) 200 μm.



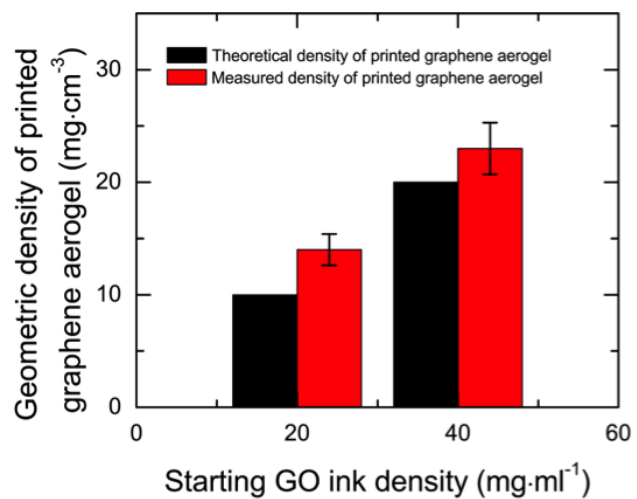
**Supplementary Figure 2.** EDS spectra of 3D printed graphene aerogel lattice after etching. Carbon content is 98.9 at%. Oxygen content is 1.1 at%. Silicon content was below the detection limit.



**Supplementary Figure 3.** (a) Nitrogen adsorption-desorption isotherms and (b) pore size distributions (BJH) for 3D printed graphene aerogels.



**Supplementary Figure 4.** Stress-strain curves during loading-unloading cycles in sequence of increasing strain amplitude from 10, 20, 30, 40, 50, 70 to 90% for 3D printed graphene aerogel microlattice with geometric density of  $58 \text{ mg} \cdot \text{cm}^{-3}$ .



**Supplementary Figure 5.** Comparison of geometric density of theoretical and measured densities of printed graphene aerogel microlattices from two starting GO inks with varying densities.