Electronic supplementary information (ESI)

Strain-Controlled Optical Transmittance Tuning of Three-

Dimensional Carbon Nanotube Architectures

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Figure S1. Lithographic designs used to pattern the catalyst layer.

(a) Straight; (b) Corner-shaped; (c) Curve; (d) Pillar.



Figure S2. CVD growth of CNT pillars.

(a) Schematic representation of the growth of CNT pillars on a substrate with patterned catalyst; (b, c) Low-magnification SEM images of the top morphology of pillar CNT; (d) High-magnification SEM image of the red rectangular area of (c); (e, f) Low-magnification SEM images of the side morphology of pillar CNT; (g) Highmagnification SEM image of the red rectangular area of (f); (h) Raman spectra of the pillar CNT array grown in this study ($I_G/I_D = 1.05$).



Figure S3. Vertically aligned CNT array.

(a) Optical image of CNT array; (b) PDMS infiltrating from the top surface of the CNT array; (c) CNT array shrank and aggregated with PDMS infiltration; SEM image of the (d) side and (e) top surfaces of CNT array without pattern; (f) SEM image of the top surface of CNT array with infiltrated PDMS.



Figure S4. Powder CNT/PDMS composite.

(a) Optical image of the powder pattern. A control sample with short CNTs in a powder form dispersed in the PDMS matrix; (b) SEM image of conventional,

dispersed CNTs in powder pattern.



Figure S5. Optical images of different patterns.

(a) Straight; (b) Corner-shaped; (c) Curve; (d) Pillar.



Figure S6. Longitudinal compression loading of the straight CNT patterns.



Figure S7. Longitudinal compression loading of the curved CNT patterns.



Figure S8. Longitudinal compression loading of the corner-shaped CNT patterns.



Figure S9. Longitudinal compression loading of the pillars (upper) and the CNT

'powder pattern' (lower).