

strategies. As such, various acts illustrated may be performed in the sequence illustrated, in other sequences, in parallel, or in some cases omitted. Likewise, the order of the above-described processes may be changed.

**[0042]** The subject matter of the present disclosure includes all novel and nonobvious combinations and subcombinations of the various processes, systems and configurations, and other features, functions, acts, and/or properties disclosed herein, as well as any and all equivalents thereof.

1. A display device, comprising:
  - a display screen having a topography-changing layer including a light-induced shape-memory polymer;
  - an imaging engine configured to project visible light onto the display screen, the visible light being modulated at a pixel level to form a display image thereon; and
  - a topography-changing engine configured to project agitation light of an ultraviolet band towards the display screen, the agitation light being modulated at a pixel level to selectively change a topography of the topography-changing layer.
2. The display device of claim 1, where the light-induced shape-memory polymer is one of a plurality of light-induced shape-memory polymers, each of the plurality of light-induced shape-memory polymers having a hexagonal cross-section parallel to the display screen.
3. The display device of claim 2, where the hexagonal cross-section of each of the plurality of light-induced shape-memory polymers defines a cross-sectional area of a same order of magnitude as a pixel of the display image.
4. The display device of claim 2, where each of the plurality of light-induced shape-memory polymers is separated from one another within the topography-changing layer by a material optically matched with the plurality of light-induced shape-memory polymers.
5. The display device of claim 2, where each of the plurality of light-induced shape-memory polymers is independently addressable, and where directing the agitation light at one of the plurality of light-induced shape-memory polymers induces a change in a size of that light-induced shape-memory polymer independent of the other light-induced shape-memory polymers.
6. The display device of claim 1, where the agitation light is of a first ultraviolet band and the change in the size of the light-induced shape-memory polymer is an expansion.
7. The display device of claim 6, where the agitation light is of a second ultraviolet band and the change in the size of the light-induced shape-memory polymer is a contraction.
8. The display device of claim 1, where the topography-changing layer is a deposited layer.
9. The display device of claim 1, where the light-induced shape-memory polymer has a grafted cinnamic group.
10. The display device of claim 1, where the light-induced shape-memory polymer is substantially transparent.
11. The display device of claim 1, where the change in the topography of the topography-changing layer is an elevated region having a substantially button-shaped form factor.
12. A surface computing system, comprising:
  - a display screen having a topography-changing layer including a light-induced shape-memory polymer;
  - an imaging engine configured to project visible light onto the display screen, the visible light being modulated at a pixel level to form a display image thereon;
  - a reference engine configured to project reference light of an infrared band towards the display screen;
  - a touch-detection engine configured to detect a relative amount or pattern of the reference light reflected back

away from the display screen and configured to recognize touch inputs directed to the display screen based on the relative amount or pattern of the reference light reflected back away from the display screen; and  
 a topography-changing engine configured to project agitation light of an ultraviolet band towards the display screen, the agitation light being modulated at a pixel level to selectively change the topography of the topography-changing layer.

13. The surface computing system of claim 12, where the light-induced shape-memory polymer has a hexagonal cross-section parallel to the display screen, the hexagonal cross-section defining a cross-sectional area of a same order of magnitude as a pixel of the display image.

14. The surface computing system of claim 12, where the light-induced shape-memory polymer has a grafted cinnamic group.

15. The surface computing system of claim 12, where the light-induced shape-memory polymer is one of a plurality of light-induced shape-memory polymers, and where directing the agitation light at the light-induced shape-memory polymer induces a change in a size of the light-induced shape-memory polymer independent of the other light-induced shape-memory polymers.

16. A surface computing system, comprising:

- a display screen having a topography-changing layer including a light-induced shape-memory polymer, the light-induced shape-memory polymer having a grafted cinnamic group and having a hexagonal cross-section parallel to the display screen;
- an imaging engine configured to project visible light onto the display screen, the visible light being modulated at a pixel level to form a display image thereon;
- a reference engine configured to project reference light of an infrared band towards a backside of the display screen;
- a touch-detection engine configured to detect a relative amount or pattern of the reference light reflected back away from the display screen and configured to recognize touch inputs directed to the display screen based on the relative amount or pattern of the reference light reflected back away from the display screen; and
- a topography-changing engine configured to project agitation light of an ultraviolet band towards the light-induced shape-memory polymer of the topography-changing layer of the display screen, the agitation light being modulated at a pixel level to selectively change the topography of the topography-changing layer by inducing a change in a size of the light-induced shape-memory polymer.

17. The surface computing system of claim 16, where the hexagonal cross-section of the light-induced shape-memory polymer defines a cross-sectional area of a same order of magnitude as a pixel of the display image.

18. The surface computing system of claim 16, where the light-induced shape-memory polymer elongates from an original size to an elongated size upon being illuminated by agitation light of a first ultraviolet band.

19. The surface computing system of claim 18, where the light-induced shape-memory polymer returns from the elongated size to the original size upon being illuminated by agitation light of a second ultraviolet band.

20. The surface computing system of claim 16, where the light-induced shape-memory polymer is substantially transparent.