CLAIMS:

1. A three-dimensional (3D) display system comprising:

a peg array comprising a plurality of pegs, wherein each peg of the plurality of pegs is individually addressable and configured to move along at least one axis;

an induction array comprising a plurality of electromagnetic coils configured to generate electromagnetic fields, wherein the electromagnetic fields are configured to induce magnetic forces upon at least one peg of the plurality of pegs to cause the at least one peg of the plurality of pegs to move along the at least one axis into an actuated position,

wherein the induction array comprises a first electromagnetic coil of the plurality of electromagnetic coils and a second electromagnetic coil of the plurality of electromagnetic coils, wherein the first electromagnetic coil of the plurality of electromagnetic coils is configured to generate a first electromagnetic field, and wherein the second electromagnetic coil of the plurality of electromagnetic coils is configured to generate a second electromagnetic field opposite the first electromagnetic field;

a display screen configured to be distended into a 3D topography via contact with the at least one peg of the plurality of pegs in the actuated position, and

wherein the at least one peg of the plurality of pegs comprises a plurality of peg coils disposed on or in the at least one peg of the plurality of pegs and that actuate together with the at least one peg of the plurality of pegs, wherein a concentration of the peg coils, a thickness of the peg coils, or both vary along a length of the at least one peg of the plurality of pegs.

2. The 3D display system of claim 1, wherein the first electromagnetic field is configured to induce a first magnetic force upon the at least one peg of the plurality of pegs to motivate the at least one peg of the plurality of pegs in a first direction along the at least one axis, wherein the second electromagnetic field is configured to induce a second magnetic force upon the at least one peg of the plurality of pegs to motivate the at least one peg of the plurality of pegs in a second direction opposite the first direction along the at least one axis such that the first magnetic force and the second magnetic force hold the at least one peg of the plurality of pegs in equilibrium in the actuated position.

3. The 3D display system of claim 1, comprising a controller configured to drive electric current through at least one electromagnetic coil of the plurality of electromagnetic coils corresponding to the at least one peg of the plurality of pegs to generate the electromagnetic fields, wherein the controller is configured to vary the electric current to change a position of the at least one peg of the plurality of pegs.

4. The 3D display system of claim 1, wherein the at least one peg of the plurality of pegs is configured to interact with the electromagnetic fields to induce the magnetic forces on the at least one peg of the plurality of pegs.

5. The 3D display system of claim 1, comprising an optics generator configured to facilitate a display of imagery on the display screen.

6. The 3D display system of claim 5, wherein the optics generator comprises a projector.

7. The 3D display system of claim 5, wherein the optics generator comprises a light source within or affixed to an end face of the at least one peg of the plurality of pegs, wherein the end face of the at least one peg of the plurality of pegs is configured to contact the display screen.

8. The 3D display system of claim 1, comprising an alignment support comprising a plurality of apertures through which the plurality of pegs are configured to actuate, wherein the at least one peg of the plurality of pegs is configured to actuate through a corresponding at least one aperture of the plurality of apertures along the at least one axis.

9. The 3D display system of claim 1, wherein the induced magnetic forces upon the at least one peg of the plurality of pegs are counterbalanced by a tension force exerted on the at least one peg of the plurality of pegs by the display screen.

10. The 3D display system of claim 1, wherein the display screen comprises an elastic material having a transmissivity greater than 50 percent.

11. A three-dimensional (3D) display comprising:

a peg array comprising a plurality of pegs;

a peg driving system configured to actuate at least one peg of the plurality of pegs from a first position to a second position such that the peg array forms a particular topography;

an optics generator configured to emit light from a surface of one or more pegs

of the plurality of pegs, wherein the emitted light from the one or more pegs of the pegs of the plurality of pegs forms an image corresponding to the particular topography;

a display screen disposed between a viewing area and the peg array and in contact with the peg array such that the particular topography is perceptible via one or more protrusions from the display screen and such that the image is transmitted through the display screen, and

wherein the at least one peg of the plurality of pegs comprises a plurality of peg coils disposed on or in the at least one peg of the plurality of pegs and that actuate together with the at least one peg of the plurality of pegs, wherein a concentration of the peg coils, a thickness of the peg coils, or both vary along a length of the at least one peg of the plurality of pegs.

12. The 3D display of claim 11, wherein the peg driving system comprises an induction array comprising a plurality of electromagnetic coils configured to induce magnetic forces upon the at least one peg of the plurality of pegs, wherein the at least one peg of the plurality of pegs is configured to move relative to the plurality of electromagnetic coils when actuated from the first position to the second position.

13. The 3D display of claim 11, wherein the peg driving system comprises a reinforced printed circuit board (rPCB).

14. The 3D display of claim 11, wherein the optics generator comprises one or more light emitting diodes (LEDs) disposed on the surface of the one or more pegs of the plurality of pegs and configured to emit light corresponding to a portion of the image.

15. The 3D display of claim 11, wherein the optics generator comprises a plurality of fiber optic cables configured to emit light corresponding to a portion of the image, each fiber optic cable of the plurality of fiber optic cables terminating at corresponding surfaces of the one or more pegs of the plurality of pegs.

16. The 3D display of claim 11, wherein the surface of the one or more pegs of the plurality of pegs comprises an end face, a side face, or both of the one or more pegs of the plurality of pegs.

17. A method for providing a three-dimensional (3D) display comprising:

supplying current to one or more electromagnetic coils configured to induce magnetic forces on one or more magnetic peg coils of a plurality of pegs of a peg array, wherein the induced magnetic forces motivate the plurality of pegs of the peg array to positions associated with a topography;

illuminating one or more light sources disposed on a tip, side, or both of the plurality of pegs of the peg array, wherein the one or more light sources are configured to display at least a portion of an image; and

coordinating movement of the plurality of pegs of the peg array and illumination of the one or more light sources such that the image corresponding to the topography is displayed while the plurality of pegs of the peg array are in the positions associated with the topography,

wherein the at least one peg of the plurality of pegs comprises a plurality of peg coils disposed on or in the at least one peg of the plurality of pegs and that actuate together with the at least one peg of the plurality of pegs, wherein a concentration of the peg coils,

a thickness of the peg coils, or both vary along a length of the at least one peg of the plurality of pegs.

18. The method of claim 17, comprising receiving 3D content and processing the 3D content into movement data and image data, wherein the movement of the one or more pegs of the peg array is based on the movement data and the illumination of the one or more light sources is based on the image data.

19. The method of claim 17, wherein the one or more magnetic peg coils comprises a first magnetic peg coil of the one or more magnetic peg coils and a second magnetic peg coil of the one or more magnetic peg coils, and wherein the supplying current comprises generating a first electromagnetic field by the first magnetic peg coil of the one or more magnetic peg coils and generating a second electromagnetic field opposite the first electromagnetic field by the second magnetic peg coil of the one or more magnetic peg coils.