CLAIMS

1. Medical imaging apparatus comprising:

a flexible skin patch comprising an adhesive layer on a lower side thereof so that said skin patch is releasably adherable to skin, in use; and

at least one fiducial marker fast on an upper side of said skin patch, the at least one fiducial marker comprising:

i. a radiopaque core detectable via a first imaging modality; and

ii. an infrared reflective coating detectable via a second imaging modality;

wherein said at least one fiducial marker is detectable as a shared, single position in space via both first and second imaging modalities, and wherein a plurality of such fiducial markers is adherable to skin of a patient, by means of said skin patch(es), to define an array of fiducial markers to enable real-time correlation of virtual and physical space by using the array of fiducial markers in said array each as a single, shared corresponding position as a navigational aid for an image-guided medical procedure.

2. Medical imaging apparatus of claim 1, wherein the first imaging modality comprises computed tomography.

3. Medical imaging apparatus of claim 1, wherein the second imaging modality comprises stereoscopic computer vision.

4. Medical imaging apparatus of any of claims 1 to 3, wherein the flexible skin patch is manufactured from a woven fabric, a polymer, polyethylene, polyurethane, or latex.

5. Medical imaging apparatus of any of claims 1 to 4, wherein the adhesive layer comprises an acrylate, such as methacrylate or epoxy diacrylate.

6. Medical imaging apparatus of any of claims 1 to 5, wherein the fiducial marker is manufactured from a radiopaque material which is also infrared reflective.

7. A medical imaging system comprising:

a stereoscopic computer vision system configured to monitor a physical space proximate a patient;

a computed tomography scanner configured to perform a CT scan to produce a virtual space of said patient;

at least one medical imaging apparatus comprising a flexible skin patch with an adhesive layer on a lower side thereof and at least one fiducial marker fast on an upper side thereof, the at least one fiducial marker comprising a radiopaque core with an infrared reflective coating, wherein a plurality of such fiducial markers is adherable to a surface of the patient, by means of said skin patch(es), to define an array of fiducial markers;

a processor arranged in signal communication with the stereoscopic computer vision system and computed tomography scanner, said processor configured to correlate the virtual and physical space using the array of fiducial markers in said array each as a single, shared corresponding position; and

a display configured to display such correlated space in real-time as a navigational aid for an image-guided medical procedure.

8. The medical imaging system of claim 7, which includes a medical instrument for use in the image-guided medical procedure, said instrument configured for detection by the

stereoscopic computer vision system and display on the display within such correlated space.

9. A medical imaging method comprising the steps of:

adhering a plurality of medical imaging apparatus to a surface of a patient, the medical imaging apparatus comprising a flexible skin patch with an adhesive layer on a lower side thereof and at least one fiducial marker fast on an upper side thereof, the at least one fiducial marker comprising a radiopaque core with an infrared reflective coating, a plurality of fiducial markers defining an array;

performing a CT scan on the patient via a computed tomography scanner to produce a virtual space of said patient;

monitoring a physical space proximate the patient via a stereoscopic computer vision system; and

correlating, via a processor, the virtual and physical space using the array of fiducial markers each as a single, corresponding position shared between said virtual and physical space as a real-time navigational aid for an image-guided medical procedure.

10. The method of claim 9, which includes the step of displaying such correlated space, via a suitable display, in real-time as a navigational aid for the image-guided medical procedure.

11. The method of either of claims 9 or 10, which includes the step of detecting a medical instrument for use in the image-guided surgical procedure via the stereoscopic computer vision system and displaying said instrument within such correlated space.