

Real-Time Holographic Surveillance System
Battelle No. 10684-E
Patent No. 5,455,590

A holographic apparatus for near real-time imaging generates electromagnetic waves that are transmitted toward a target at a number of predetermined positions. The waves reflected from the target are collected and processed to produce and display a holographic reconstruction of the target. This invention can penetrate materials such as clothing to provide a high resolution holographic image of concealed objects.

Real-Time Wideband Holographic Surveillance System
Battelle No. 10684-E
Patent No. 5,557,283

A wideband holographic apparatus for near real-time imaging generates and transmits a number of electromagnetic waves toward a target at a number of predetermined positions. The reflected waves are received and converted to electrical signals then processed to create and display a holographic reconstruction of the target. Wideband imaging permits the forming of a fully-focused three-dimensional image.

Real-Time Wideband Cylindrical Holographic Surveillance System
Battelle No. 10684-E
Patent No. 5,859,609, EP 0 925 517 B1, DE 697 08 890 T2

A wideband cylindrical holographic apparatus for near real-time imaging generates and transmits a number of electromagnetic waves toward a target at a number of predetermined positions. The reflected waves are received and converted to electrical signals then processed to create and display a holographic reconstruction of the target. The cylindrical design of the device allows the antenna array to rotate 360° around the target. A new reconstruction algorithm was developed to accommodate the wideband data gathered in a cylindrical fashion to form a three-dimensional image. Computer-generated animation permits sequential viewing of rotating images of the target.

Interrogation of an Object for Dimensional and Topographical Information
Battelle No. 12574-E
Patent No. 6,507,309

A unique technology is described that uses electromagnetic radiation to determine body measurements of a clothed individual. A volumetric representation of the object being measured is provided to enable the display of images and/or to determine dimensional or topographical information regarding the object being measured. Volumetric representations of different parts of the body or object can be provided from the captured data sets. One application of this technology is to correlate body measurements to clothing sizes.

Interrogation of an Object for Dimensional and Topographical Information
Battelle No. 12574-E
Patent No. 6,703,964

A unique technology is described that uses electromagnetic radiation to determine body measurements of a clothed individual. A number of data sets are generated each representing different views of the object being measured. The data sets are combined to generate a topographical representation of the object. A database of data sets can be created allowing for future comparisons with new data sets. One of the uses of this technology could be the ability to control access to restricted areas by comparing topographical measurements of body dimensions.

Detecting Concealed Objects at a Checkpoint
Battelle No. 12574-E
Patent Application No. 10/697,848

This technology uses electromagnetic radiation to determine whether or not a concealed weapon is being carried on an individual. The determination is reached by collecting data of the individual with a pair of semi-cylindrical array panels positioned on opposite sides of the area being scanned. The arrays are structured to move on a curvilinear path around the scanned area.

Concealed Object Detection
Battelle No. 12711-B
Patent No. 6,876,322

This technology uses electromagnetic radiation to determine whether or not a concealed weapon is being carried by an individual. Processor analysis can be set to discriminate between different types of man-made objects that could be concealed on a subject. Data sets are adaptively processed to identify concealed man-made objects, the images of which are then displayed in relation to position on the body. An image feature extraction filter is employed on the compiled data sets to assist in identification of the man-made object.

Detection of a Concealed Object
Battelle No. 12713-E
Patent Application No. 10/697,965

This technology uses electromagnetic radiation to determine whether or not a suspicious concealed object is being carried by a clothed individual. Electromagnetic radiation is detected while returning from a concealed surface associated with a person. Data is established that corresponds to the intensity of the returned radiation and is processed to determine if a man-made object suspected of being a type of contraband or potential security threat is being carried by the person being scanned.

Three-Dimensional Surface/Contour Processing Based on Electromagnetic Radiation Interrogation
Battelle No. 13560-B
Patent Application No. 10/950,244

This technology scans a target, such as a clothed person, with electromagnetic radiation and establishes a point cloud representation of the surface of the target. One or more curve-fitting operations are performed to provide a three-dimensional topographical image of the surface of the target. If the target is a person, the image models the contours beneath the clothing.