Bi-Plane X-Ray Imaging System

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Technology description

Background
It is estimated that over 20 million Americans are plagued by the effects of osteoarthritis (OA) and that over 75% of the population will have radiographic evidence of OA by the age of 65, although only 50-60% of those will be symptomatic. As of today, there are no reliable and effective mechanisms available to detect OA in its early and potentially treatable stages.
Technology
This invention is composed of a system that facilitates examination of a subject using high-speed, three-dimensional (3D) motion at a very extremely high resolution. The system enables examination of the subject on two different planes (bi-plane) which effects high speed 3D imaging of skeletal motion. These captured bi-plane images can then be used in combination with the information provided from computed tomography (CT) scans to reconstruct individual-specific joint motion.

Application area

1) In-vivo assessment of joint function * Includes knees, hips, shoulders, spine, hips, ankles and feet
2) Pre-op screening * Determines need for surgery after injury
3) Predicts clinical outcome following surgery * Determines who will do well

Advantages

1) Provides accurate measurement (/- 0.1 mm) assessment and direct 3D visualization of dynamic joint function
2) Can overcome the limitation of conventional gait or motion analysis

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