**Definition - What does Motion Tracking mean?**

Motion tracking assists in tracking the movement of objects and transferring the sensed data to an application for further processing. Motion tracking includes capturing the motions of objects matching with its stored motion template. This has a wide range of applications such as in military, entertainment, sports, medical applications, validation of computer vision and robotics. Furthermore, it is also used in film making and in video game development. In many areas, motion tracking is often called motion capture, whereas in film making and games, motion tracking is commonly called match moving.

Motion tracking enhances human-computer interaction and plays a vital role in computer animation of a 3-D model. It provides real-time information, and the amount of animation data produced by motion tracking within a given time is large. Motion tracking requires specific hardware and software programs to capture and process the data.

Motion tracking is a method of recording the movement of an element (a shape or reference point in a movie clip) in the canvas, then applying that recorded movement data to another element in the canvas. For example, you can use motion tracking techniques to:

* “Pin” a post-production graphic to the side of a moving bus
* “Track” a blurry circle to a person’s face to preserve an innocent bystander’s anonymity
* Stabilize a ridiculously shaky camera to vastly improve a “found-footage” thriller
* “Replace” a daring stuntman’s head with the mug of a lazy leading actor

There are [six tracking behaviors](https://support.apple.com/kb/index?page=link&apdid=motn1818f616&viewlocale=en_US&bookId=Motion%205133281) available in Motion. You apply a tracking behavior to an object in your project (typically a movie clip) to record and analyze its movement. The result of this analysis is a *track*—recorded movement data—that can be applied to any other object in the project, transferring the motion of a source object to a destination object.

The CINEMA system has a procedural interface for specify- ing camera movements relative to objects, events, and the general state of an environment. This task level approach enables the implementation of many common interactive metaphors and pro- vides the ability to build higher level parameterized procedures that are reusable.

An effective camera protocol must support interfaces that investigate/explore and interfaces that present/illustrate the 3D world. Although we have only begun to explore the uses of this system, there are many applications in which it could be used. In both scientific and architectural visualization there is the need to explore the virtual environment interactively and then to later author a set of illustrative camera movements to be shown to cli- ents or colleagues. In electronic books there will be the need for a designer or knowledge based system to generate an interface through which a reader can view the information. In the entertain- ment industry an animator could use it to direct or specify camera movements. Live action film makers may use it to create interac- tive story boards of their scenes, plan camera movements, or even to generate commands for motion controlled cameras. Telerobotic or virtual environment applications require a task level camera