

# Full body mocap

Full body mocap (motion capture) is a technology used to record the movements of a person or an object and translate them into digital data. This data can then be used to animate digital characters or objects in 3D environments. In full-body mocap, sensors are attached to various points on the body (e.g., joints like knees, elbows, and shoulders), and as the person moves, the system records the motion in real-time. These sensors can be optical (using cameras) or inertial (using gyroscopic sensors).

## How Full Body Mocap Works:

1. **Suit & Sensors:** The performer wears a suit with sensors placed on key points across the body. These sensors track the movement of the limbs, torso, and other body parts.
2. **Cameras or Inertial Sensors:** Optical systems use multiple cameras to capture the position of the sensors in space. Inertial systems use built-in sensors in the suit to measure movement directly.
3. **Software:** The captured data is processed by software to create a virtual skeleton that mirrors the movements of the performer in real-time.
4. **Animation & Rendering:** The data is used to animate digital characters or avatars in 3D software, which can then be used in films, video games, or virtual environments.

## Application in Audiovisual Arts and Theatre:

1. **Film & Animation:** In filmmaking and animation, full-body mocap is widely used to create realistic movement for digital characters, especially in VFX-heavy movies. Think of characters like Gollum in *The Lord of the Rings* or the Na'vi in *Avatar*. This allows filmmakers to blend live action with digital environments or characters seamlessly.
2. **Virtual Reality & Immersive Art:** Mocap is used in creating immersive virtual reality (VR) experiences, allowing performers to interact with virtual environments in real-time. In audiovisual art, this can involve live performances where the artist's movements control or generate digital visuals and sound.
3. **Theatre Performances:** Full-body mocap has also been incorporated into theatre productions to explore new ways of storytelling. For instance:
  - Actors' movements are captured and projected onto screens as avatars or animated forms, blending live performance with digital art.
  - Interactive set designs: Mocap can control virtual sets that respond dynamically to the actors' movements, adding layers to the performance.

4. **Dance and Performance Art:** Mocap is used to create interactive audiovisual installations where dancers' movements trigger or manipulate projected visuals, sounds, or lighting in real time. This enables artists to combine physical performance with digital creativity, offering audiences an integrated multimedia experience.

In these applications, mocap enhances the creative possibilities of performance by merging physical and digital spaces, allowing for innovative storytelling and audience engagement.

**available at HKU:**

[Motive/Optitrack](#) : camera system in the Blackboxes

[Rokoko](#) : Inertia [Smartsuit](#) for full body mocap, anywhere.

alternatives:

[Xsens Bodysuit](#) (not at HKU)

[Vive Ultimate trackers](#) (not at HKU)

and more....

Als see <https://bookstack.hku.nl/books/3d-depth-cameras/page/types-of-depth-cameras-alternatives-for-position-tracking>

for 3d camera's, mediapipe and apps that allow body tracking through camera

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