

# Product Data Sheet



**SHADOW** SDK

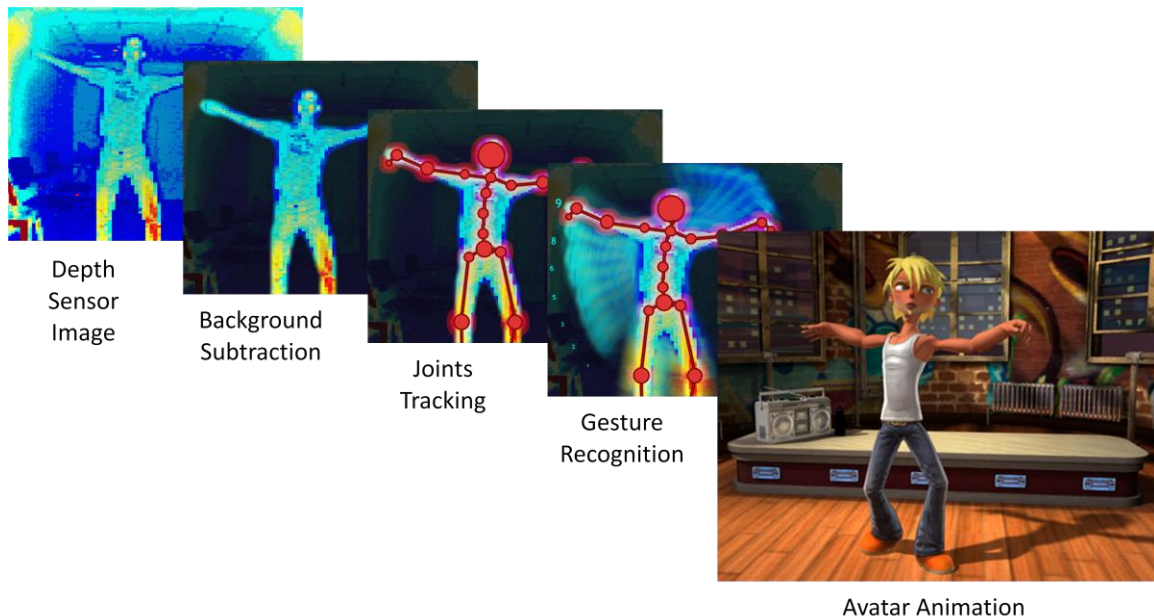
Omek Interactive





SHADOW SDK

Omek Interactive's Shadow is a complete motion gaming development environment. Shadow interprets the data generated by depth sensors, reliably computes the 3D locations of over 20 points on players' bodies, and provides an easy and intuitive framework for gesture recognition, as well as a tool suite to create such gestures automatically. Shadow has low CPU and memory requirements, runs in real-time, supports multiple players, and provides an easy-to-use API that can be integrated smoothly into any existing applications or game engines.



## TRACKING API

The tracking API provides developers with real-time 3D positions and rotations of the joints of the player's body. The available joints are the head, torso, shoulders, hands, tips of the fingers, elbows, 4 points along the spine, the hips, knees, and feet. Furthermore, Shadow incorporates an IK Skeleton so that the 3D locations are calculated in relation to each other and corrected to fit a realistic human model. The joints data output from the tracking layer can be blended with key-framed animations generated by any of the standard animation packages, including Maya, 3ds Max, and Softimage.

- **Animation Retargeting.** The tracking generated by a player can be mapped onto any arbitrary 3D character, even one with entirely different body proportions.
- **Blending.** Omek Shadow lets developers mix real-time player tracking with pre-generated animation curves, by smoothly blending the animation from these two distinct sources.



SHADOW SDK

## GESTURE RECOGNITION FRAMEWORK

Developers can define and implement their own gestures, and integrate them into Shadow's gesture recognition framework to control the player's interactions with the game. The gesture recognition layer provides the simple building blocks for developers to construct a complex system to control the player's interaction with the game.

- **In-game Gesture Control.** Simple gesture control interface to register gestures, turn gestures on, off, impose delays and refractory periods.
- **Hierarchical Structure.** Omek Shadow implicitly uses a hierarchical state machine to manage the dependency structure of the different gestures, enabling the developer to construct complex behaviors from many simple gesture building blocks, such as conditioning the recognition of one gesture on previous detections of other gestures.
- **Different Gesture Creation Options.** Omek provides a library of pre-generated gestures for developers to immediately integrate into their games. In addition, developers can manually write their own gestures, or they can generate them using the Automatic Gesture Learning Tool Suite.

## AUTOMATIC GESTURE LEARNING TOOL SUITE

The Automatic Gesture Learning Tool Suite is a key component of the Shadow product. This tool suite enables developers to automatically create and train their own gestures, *without having to write any code*. The gesture creation process relies on four straightforward steps:

- **Record.** Record players performing the desired gestures and manage the recorded sequence data.
- **Mark.** Mark both positive and negative examples for the desired gesture.
- **Learn.** Train an unsupervised learning classifier on the marked data to generate a new gesture that can be easily integrated into the game.
- **View.** Immediately view the results in real-time to decide if more data should be added to the automatic learning process.

## MOTION GAMING FRAMEWORK

The motion gaming framework API contains all of the additional tools that provide developers with an accessible, intuitive interface to begin building motion games. This includes:



SHADOW SDK

- **Background Subtraction.** This component constructs, stores, and dynamically updates the player's environment, so objects other than the player that appear in the scene do not interfere with the player. Additionally, this component filters out the surrounding environment from the depth camera images, and separates the background from the foreground.
- **Player Tracking.** Ensure that additional players/ objects entering the scene are filtered out, and track the main player(s) at all times, even as other "observers" enter the camera's field of view. This component also exposes to developers a 2D mask containing the players' silhouettes.
- **Alerts.** If a player exits the camera's field of view, or behaves in some other, unexpected way, broadcast an alert with a description of the problem so the application can act accordingly.
- **Camera Interface.** Shadow completely handles the interface to the depth camera. It automatically configures the correct settings, ensures that the camera is working, and grabs images that can be fed into the Player Manager Module. It provides a standard interface to the various different depth cameras so the developer can interface to any depth camera seamlessly.

## PROFESSIONAL SERVICES

Omek offers additional support to developers building motion games, including custom gesture development, and assistance with design and testing.

Omek Shadow comes with full documentation, user guides, and sample code, as well as demo applications displaying the live tracking and gesture recognition, and can be integrated easily into existing products.



contact us



For business and general inquiries:

Ilana Fletcher

Email: [ilana@omekinteractive.com](mailto:ilana@omekinteractive.com)

Tel: +972 2 991 8363

Fax: +972 2 991 8372

Mob: +972 5 479 07919

[www.omekinteractive.com](http://www.omekinteractive.com)