What is Leap Motion?

- Leap Motion technology makes it possible to interact with technology using your bare hands.

- The company was founded in 2010 by David Holz and Michael Buckwald, and began shipping the Leap Motion Controller in July 2013.

- Leap Motion HQ is in San Francisco, CA.
What Can You Do with It?

The Leap Motion Controller works alongside your mouse and keyboard, translating hand and finger movements into a rich array of 3D input. Developers are using the device to create everything from games, art, and music to motion-controlled robots and AR/VR experiences.
Hardware Breakdown

- **Near-Infrared LEDs**
  - Illuminate hands in day or night

- **Wide Angle Lenses**
  - Provide large interaction space

- **Global Shutter Image Sensors**
  - 120+ frames per second

- **USB Controller**
  - Crops and compresses video streams
  - USB 2.0
Languages Available

Native Development
- Windows, Mac & Linux
- C++, C# (Unity3D), Objective-C, Java & Python
- Extensible to other languages (e.g., Flash/AIR, MatLab, Ruby)
- Polling or event callbacks
- SDK, libraries, documentation, tutorials & examples available from developer.leapmotion.com
- Unity assets and examples from developer.leapmotion.com/downloads/unity

Web Development
- Support for modern browsers through WebSocket connection
- JavaScript & CoffeeScript
- Plugin system to share common code & reduce boilerplate
- Polling or event callbacks
- LeapJS library, documentation, tutorials & examples available from Leap.JS
- Libraries hosted on our CDN
The Leap Motion system recognizes and tracks hands, fingers and finger-like tools. The device operates within 60 cm of the user with high precision and tracking frame rate – reporting discrete positions, motions, and gestures.

- **Hands**
  - Handedness (left or right)
  - Bones and joints from elbow through fingertips
  - Position, length, radius & orientation of each bone
  - Tracking confidence

- **Gestures**
  - Circle and swipe
  - Recent translation & rotation of hand
  - Grab strength for hand
  - Pinch strength for hand
Image API

- What you see is what the Leap sees!
  - Near-infrared view of the world
  - Stereoscopic images
  - Minimal distortion & low latency
Leap in the Wild

Healthcare

Games

Design
Development Tips

- **Device location & orientation**
  - Consider hand ergonomics
  - Clear the Leap controller’s view
  - Understand what is visible to the Leap controller

- **Motion control vs. gestures**
  - Immediate vs. delayed result
  - Direct object manipulation vs. abstract state control

- **User experience**
  - Orient user with tutorials
  - Provide visual feedback

- **Menu interaction**
  - Throw away 2D assumptions (clicks)
  - Use boundary-crossing or hover
  - Integrate menus with content

- **Development process**
  - Observe interaction styles in other motion-controlled applications
  - Focus on core interactions
  - Make rapid prototypes
  - Test with users and iterate
Helpful Links

Design Tips:
- 4 Tips for building your first motion controlled experience
- VR Design Guidelines
- Widgets for Unity
- Quick Switch for Unity
- JavaScript VR Quickstart
- Building VR Applications from Scratch
- VR Troubleshooting Guide

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Thank You

Feel free to contact us!

Questions? Email us!
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