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Hands on with Leap Motion

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Introduction

Leap Motion is a device that allows touch-free interaction with your computer. When used in conjunction with VR tools like Oculus Rift it can allow interaction with objects in a virtual world. This presentation will focus on my experience with it, some of the pitfalls of the product as well as code examples for those interested in Leap Motion app development.

Overview

- Uses infrared cameras to detect position of your hands
- Has a sophisticated tracking system:

- Hands (left vs right, orientation, position)
- Fingers (curled in or pointing)
- Gestures: swipe, circle, punch etc
- Speed, Grip strength, pinch strength, etc

12/4/15



[Leap Motion Mashup](#)

App Store

- Comes with an App Store (Leap Motion App Home) available on Windows and Mac
- Purchase apps through <https://apps.leapmotion.com/>
- Most apps can be categorized into 4 categories
 - Games (usually simple)
 - Exploration (walk around space station, anatomy)
 - Music/Art (play a harp, synthesizers etc Sculpting)
 - Human-Computer interaction (control PC)
- A lot of free apps. A number of very polished paid apps.
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Relationship with Oculus

- Very strong connection to Oculus. One of the first things they mention on their site is interaction with VR
- Designed to be attached in front of Oculus Rift or Samsung Oculus goggles
- A lot of examples, resources, and API docs for integration with VR apps.
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Development

- Official APIs:
 - C#/Unity
 - Javascript (make leap motion intractable websites/apps)
 - C++
 - Java
 - Python
 - Objective-C
 - Unreal Engine
- Heavily promoting C#/Unity or Javascript
- My great app idea: `file:///home/alex/LeapDeveloperKit_2.3.1+31549_linux/LeapSDK/samples/KittyPetting.html`

Short API overview



- λ Create a controller
- λ Create a loop that listens for Frames from the controller
- λ Each frame contains data for hands, fingers and gestures.
- λ You can subclass and create custom gestures to be detected.

Pitfalls

- Majority of the apps assume you have an Oculus Rift
 - I don't have one. (~1500\$ on ebay for original Oculus)
 - Probably the best way to make your leap motion be useful. Products definitely work together well to improve each other.
- Hands get tired very quickly.
- Gestures are not very accurate. Have to be very precise with your actions. (especially fingers)
- Lack of interesting apps. A lot of simple games. A couple of music related apps that cost way too much money. (A lot more now than even a few months ago so this is quickly improving)