Gesture Tracking

Leap Motion and Kinect

By

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What is Gesture Tracking?

- Gesture recognition helps computers to understand human body language. This helps to build a more potent link between humans and machines, rather than just the basic text user interfaces or graphical user interfaces (GUIs). These old-fashioned input methods still limit all inputs to mouse and keyboard.

- The most common tracking technology is video tracking. That is what this presentation is about.

General requirements for a tracking system

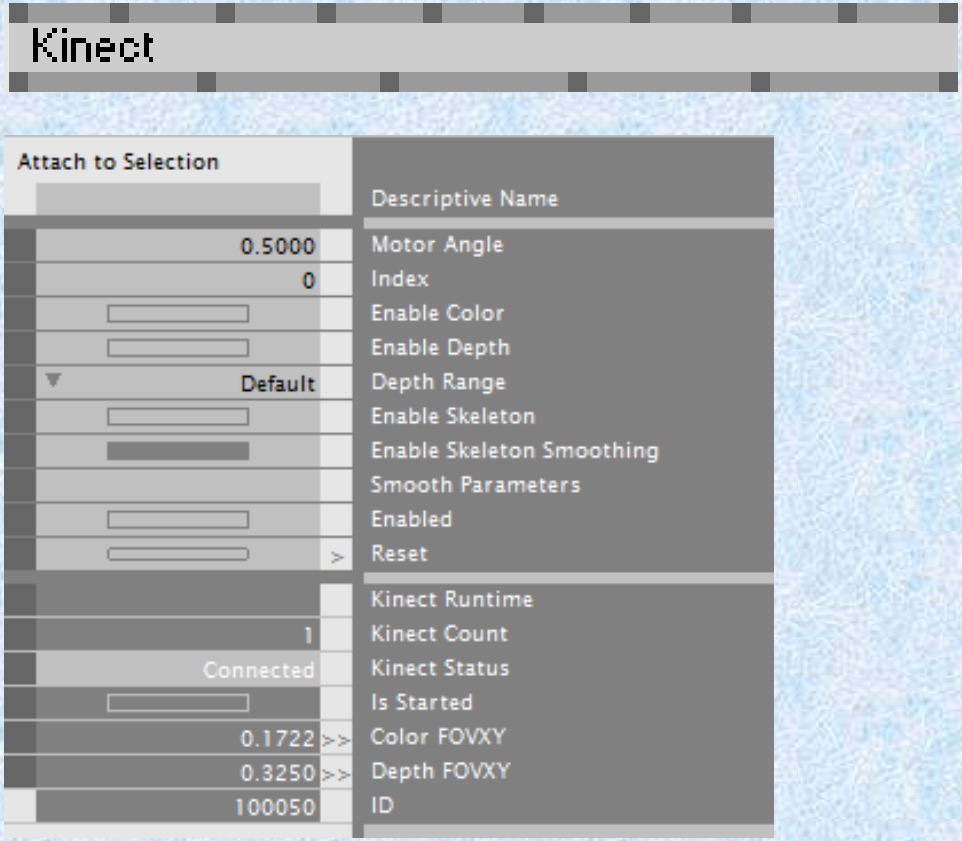
- Similar to the requirements of photography, consisting out of:
  - Illumination
  - Definition
  - Distortion
  - Resolution
  - Frame rate
  - Reflections
  - Background

Kinect

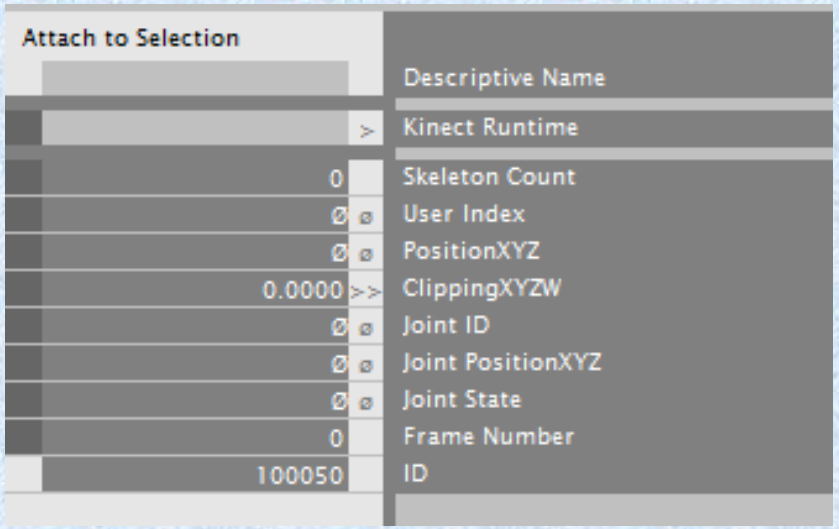
- Infrared sensors
- RGB camera
- Microphone
- Motor

Kinect in VVVV

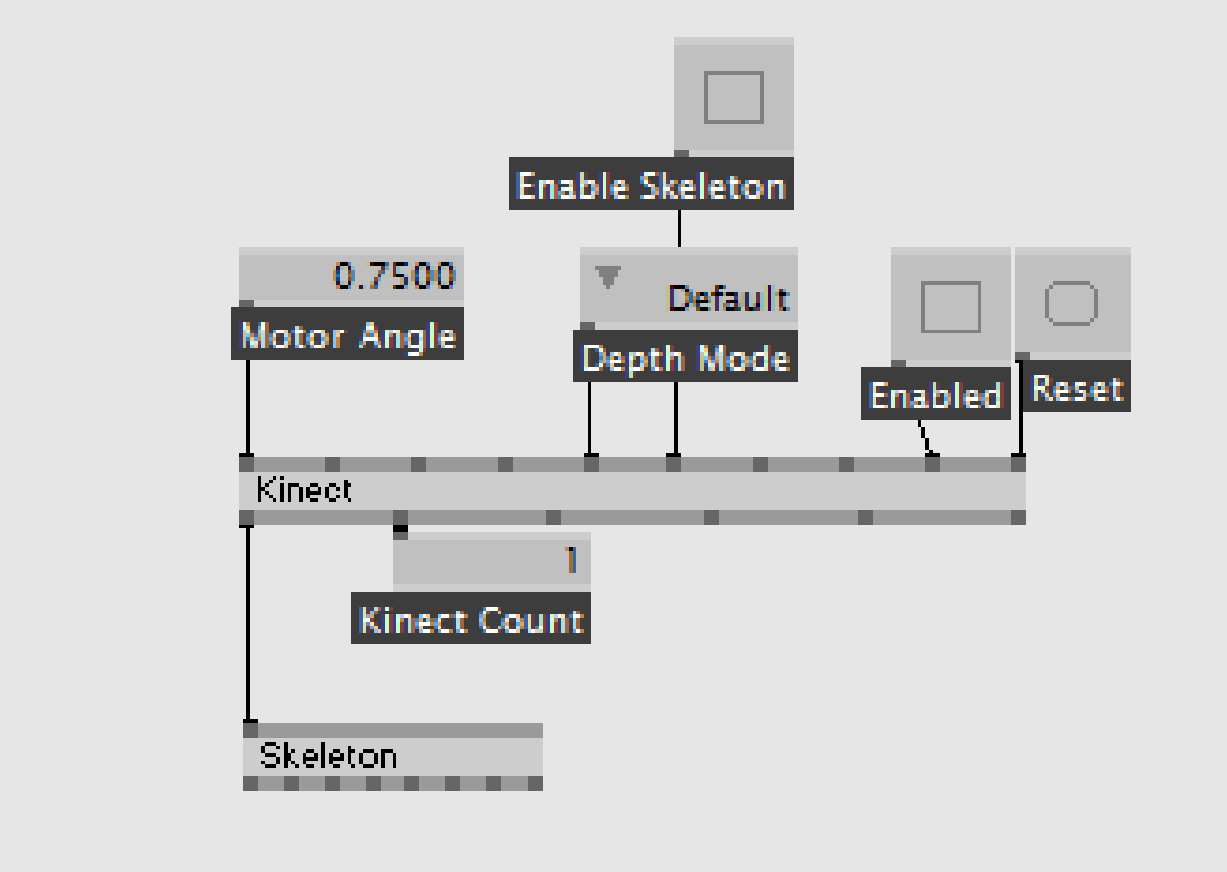
- Kinect Node:



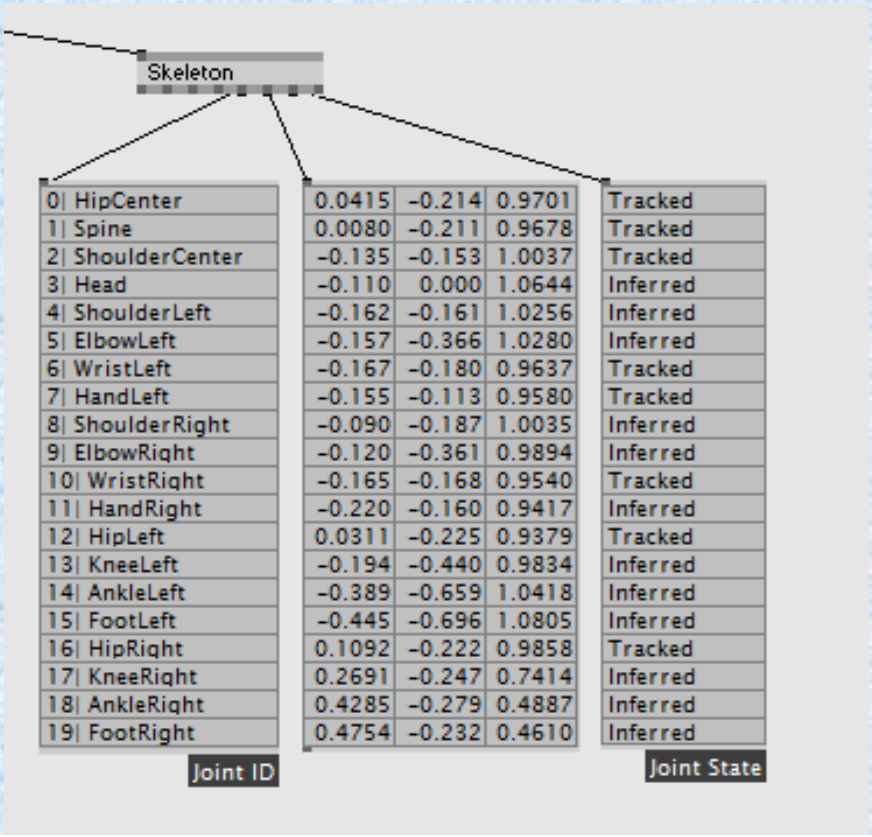
- Skeleton Note:



- Together:


Enable Skeleton
0.7500
Motor Angle
Default
Depth Mode
Enabled
Reset
Kinect
1
Kinect Count
Skeleton

- Data of the single parts of the body:

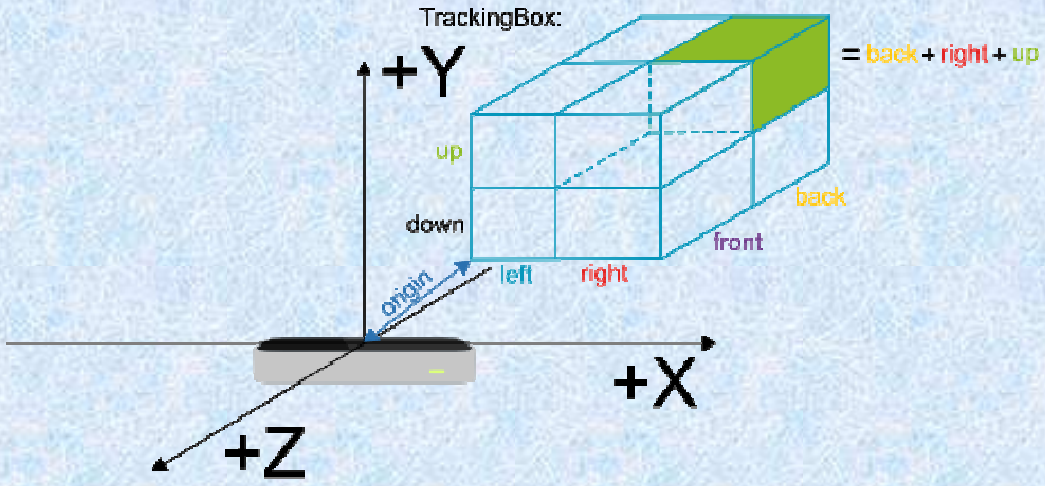


Kinect skeleton demo patch

- Demo patch Kinect

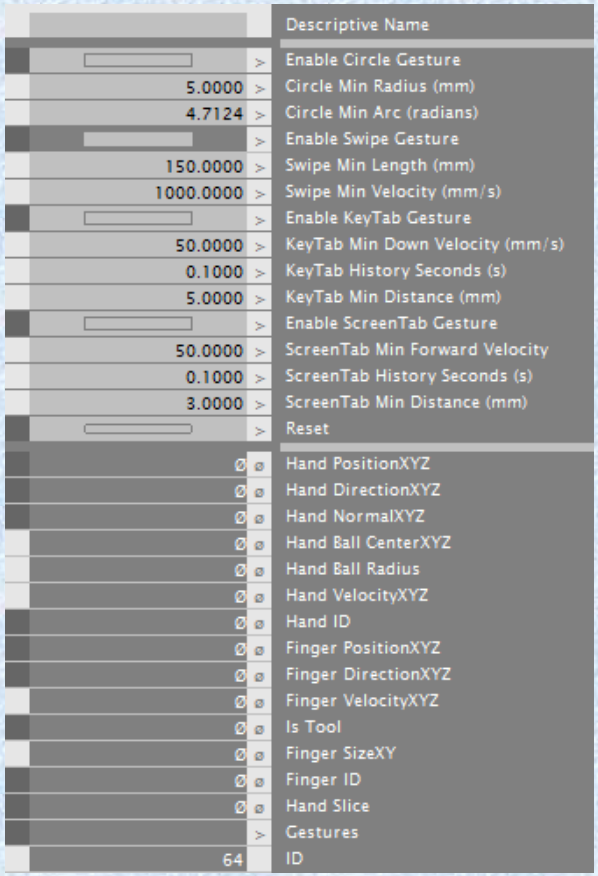
Leap Motion

- two monochromatic IR cameras
- three infrared LEDs

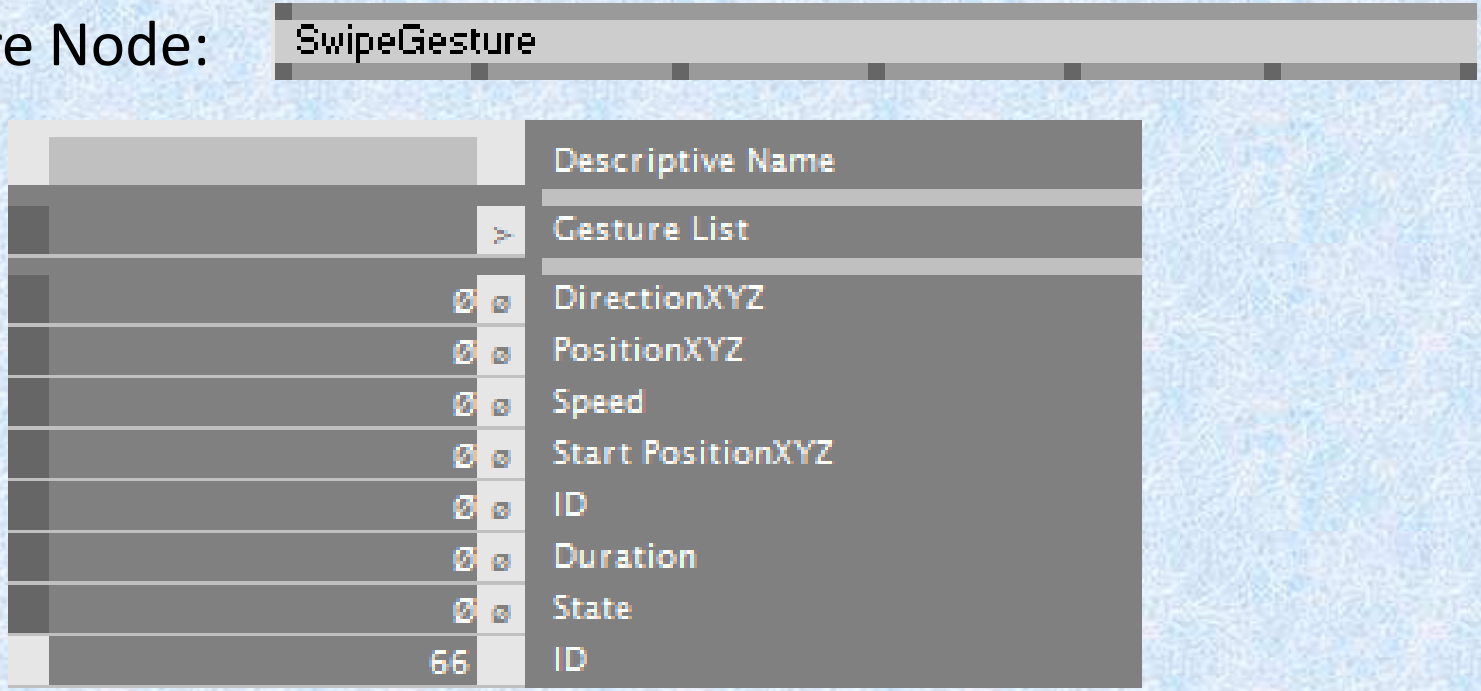


Leap motion in VVVV

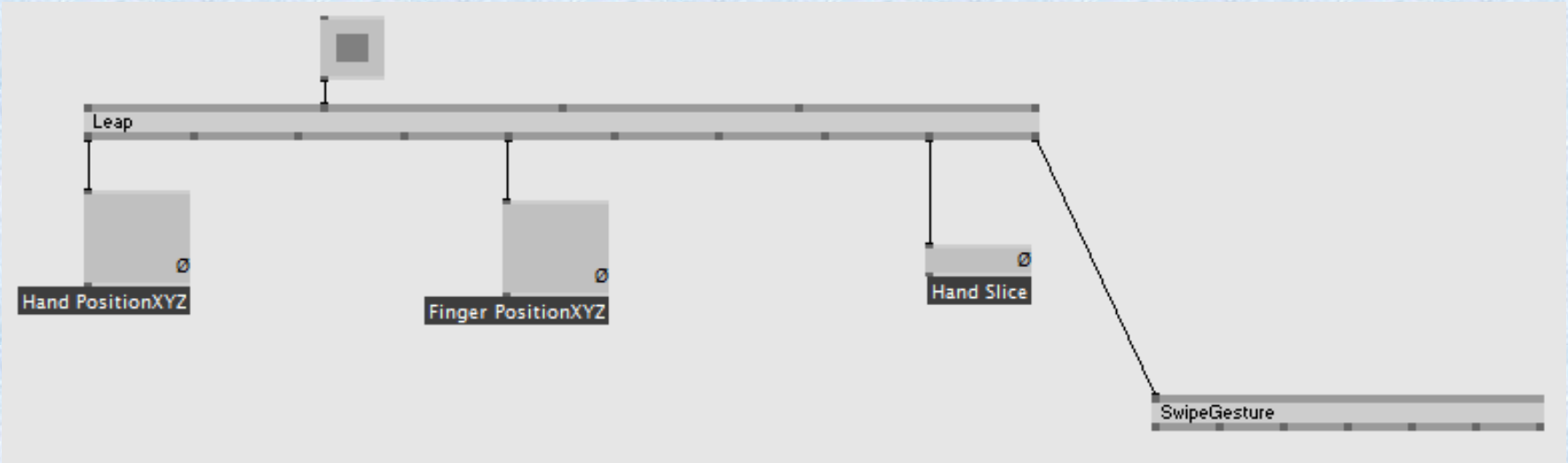
- Leap Node:



- SwipeGesture Node:



- Together:


Leap
Ø
Hand PositionXYZ
Ø
Finger PositionXYZ
Ø
Hand Slice
SwipeGesture

Leap Motion demo patch

- Demo patch leap motion

Kinect vs. Leap Motion

- Kinect:
  + Tracking of the whole body
  + The complete body as interface
  - Not very exact measuring of single parts of the body
  - Price more than two times higher than Leap Motion , ca. 200€
- Leap M.:
  + Very exact Tracking of the Hand
  + Very easy to use and low price, ca. 90€
  + A certain amount of applications are existing for free use(kind of like App store)
  - Not capable of measuring any other part of the body than the hand

- The Kinect is good if you want to use your whole body as an interface. So far it is the only system for private use that is capable of Tracking the whole body.

- The Leap Motion is very good for controlling for example the computer or the browser with hand gestures, because it has a quite exact recognition of the Hand. It also already has a good offer of different applications and games through the app store airspace.

Questions??

Sources

- Prototyping interfaces: Interaktives skizzieren mit vvvv: Hermann Schmidt Mainz Verlag 2013
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