

More Blender + Deepmotion

Adjustment Layers, smoothing, retargeting
AI-based motion capture

Today

- Class files and video exercises
- Student Presentations

- Adjustment Layers
- Retargeting animation to different characters
- Cleanup
- Adjustment Layers: two methods (per loop, or separating motion)
- Inverse Kinematics vs Forward Kinematics, and making a control rig

Class Files Online

- PDFs from lecture and exercises
- Videos from exercises (I will try to put these up today!)
- Reference files

<http://tacticalspace.org/iidc-class-files>



TACTICAL SPACE LAB

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IIDC – MOTION CAPTURE – CLASS FILES

Class Days (PDFs, Videos, Reference Files)

Day 1.1

[Mocap-Day-1-Week-1](#) 

Student Presentations

**short presentations of mood board
and selected video**

Second part of Assignment 1

recreate your chosen video side-by-side with the original

Retargeting

**Copying animation to different characters,
using Rokoko Live Studio plugin**

Before installing Rokoko plugin

- Turn off VPN if you have it
- We have to point Python to a server that is not blocked:

1. Find where your Blender is installed and the “python” folder. Copy it

`D:\Blender Foundation\Blender 4.0\4.0\python\bin`

2. Run “cmd” in windows Run bar



3. Type `“`, paste the location, then paste

`python.exe" -m pip config set global.index-url https://mirrors.aliyun.com/pypi/simple/`

The plugin install will fail if you have VPN turned on, and haven't run the “-m pip config set global.index-url ...” command

```
Runtime exception:
Traceback (most recent call last):
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_vendor\urllib3\response.py", line 438, in _error_catcher
    yield
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_vendor\urllib3\response.py", line 561, in read
    data = self._fp.read(amt) if not fp_closed else b""
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_vendor\urllib3\response.py", line 527, in _fp_read
    return self._fp.read(amt) if amt is not None else self._fp.read()
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_vendor\cachecontrol\filewrapper.py", line 98, in read
    data: bytes = self._fp.read(amt)
  File "D:\Blender Foundation\Blender 4.0\4.0\python\lib\http\client.py", line 466, in read
    s = self._fp.read(amt)
  File "D:\Blender Foundation\Blender 4.0\4.0\python\lib\socket.py", line 705, in readinto
    return self._sock.recv_into(b)
  File "D:\Blender Foundation\Blender 4.0\4.0\python\lib\ssl.py", line 1307, in recv_into
    return self.read(nbytes, buffer)
  File "D:\Blender Foundation\Blender 4.0\4.0\python\lib\ssl.py", line 1163, in read
    return self._sslobj.read(len, buffer)
TimeoutError: The read operation timed out

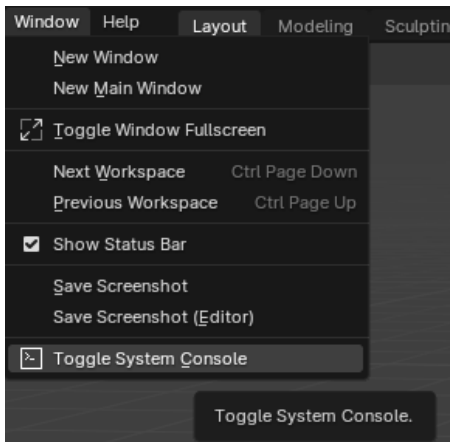
During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_internal\cli\base_command.py", line 180, in exc_logging_wrapper
    status = run_func(*args)
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_internal\cli\req_command.py", line 245, in wrapper
    return func(self, options, args)
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_internal\commands\install.py", line 377, in run
    requirement_set = resolver.resolve(
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_internal\resolution\resolver\resolver.py", line 179, in resolve
    self.factory.preparer.prepare_linked_requirements_more(reqs)
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_internal\operations\prepare.py", line 552, in prepare_linked_requirements_
    more
    self._complete_partial_requirements(
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_internal\operations\prepare.py", line 467, in _complete_partial_requiremen
    ts
    for link, (filepath, _) in batch_download:
  File "C:\Users\joshh\AppData\Roaming\Python\Python310\site-packages\pip\_internal\network\download.py", line 183, in __call__
    for chunk in chunks.
```

```
D:\>"D:\Blender Foundation\Blender 4.0\4.0\python\bin\python.exe" -m pip config set global.index-url https://mirrors.aliyun.com/pypi/simple/
Writing to C:\Users\joshh\AppData\Roaming\pip\pip.ini
```

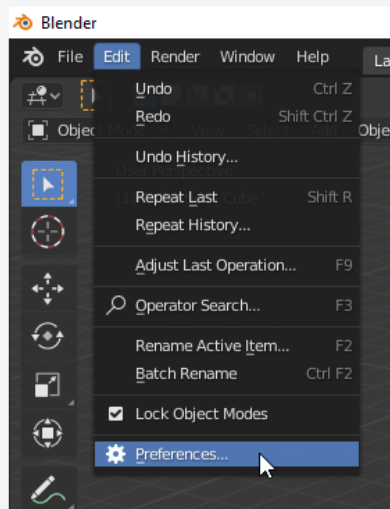
Rokoko Plugin

- Allows us to easily retarget our animations to different characters
- You may have errors installing, so turn on your System Console to check:

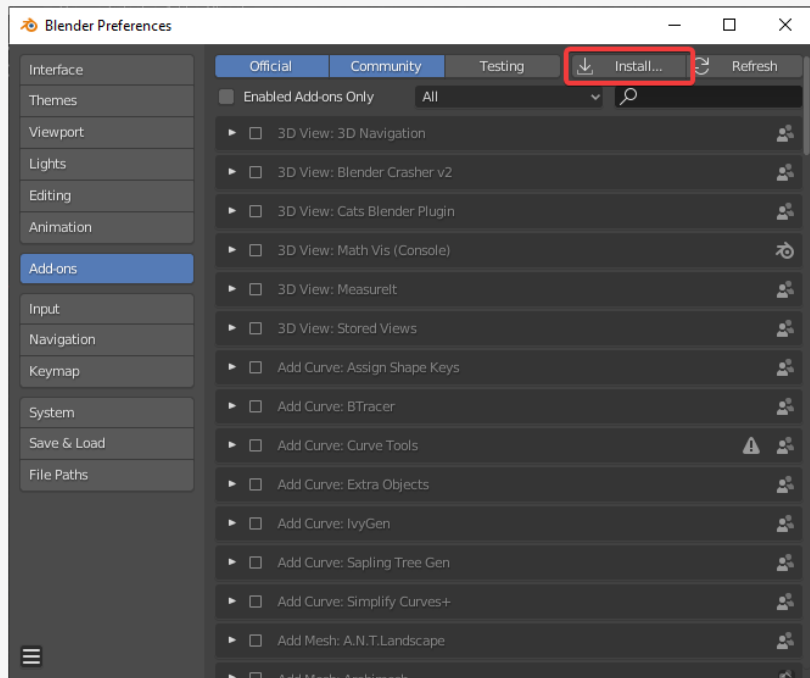


Installing the plugin

- Download the updated plugin from Rokoko website: <https://www.rokoko.com/integrations/blender>. Please refer to the latest Blender plugin release notes for the installer. Do not unzip the file once it has been downloaded.
- In Blender go to Edit -> Preferences.

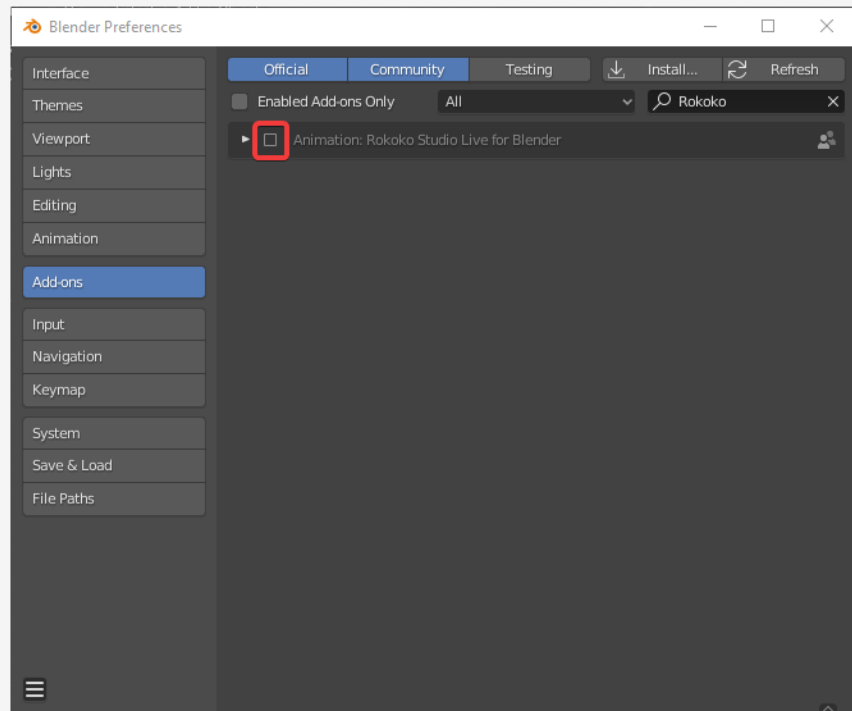


- In Preferences go to Add-ons > Install.



- Select the downloaded zip file in the opened file browser and install it.

- Enable “Rokoko Studio Live for Blender” by checking the checkbox next to it.





Studio Command API

Address: 127.0.0.1

Port: 14053

Key: 1234

[Stop] [Refresh] [Red] [White]

Retargeting

Select the armatures:

Source: Armature.001

Target: Armature

[Refresh] Rebuild Bone List

r_handPinky2_JNT	[Hand]
r_handPinky3_JNT	[Hand]
Lupleg_JNT	[Hand] mixamorig:LeftUpLeg
Lleg_JNT	[Hand] mixamorig:LeftLeg
Lfoot_JNT	[Hand] mixamorig:LeftFoot
Ltoebase_JNT	[Hand]
rupleg_JNT	[Hand] mixamorig:RightUpLeg
rleg_JNT	[Hand] mixamorig:RightLeg
rfoot_JNT	[Hand] mixamorig:RightFoot
rtoebase_JNT	[Hand]

+ Add Custom Entry

Auto Scale

Use Pose: Rest Current

[Refresh] Retarget Animation

Custom Naming Schemes:

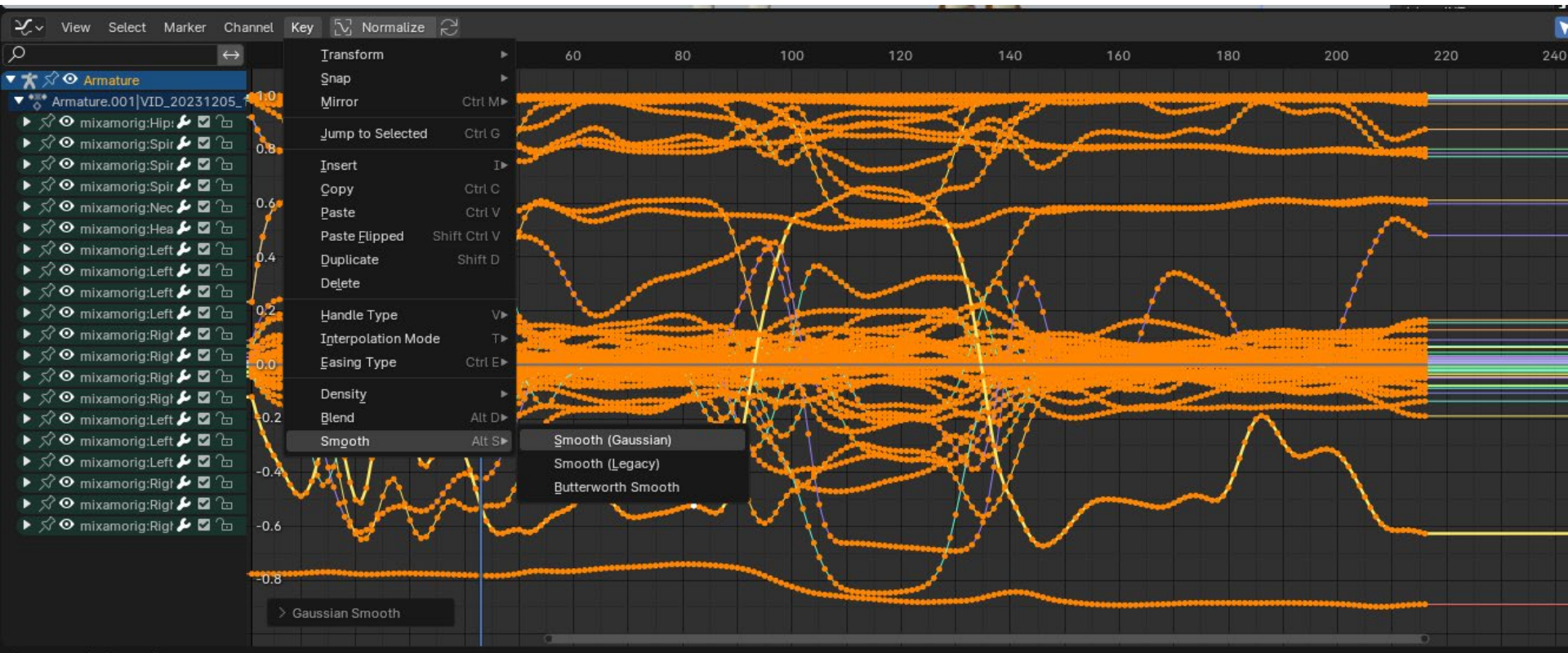
Save Import Export

> Updater

▼ Info

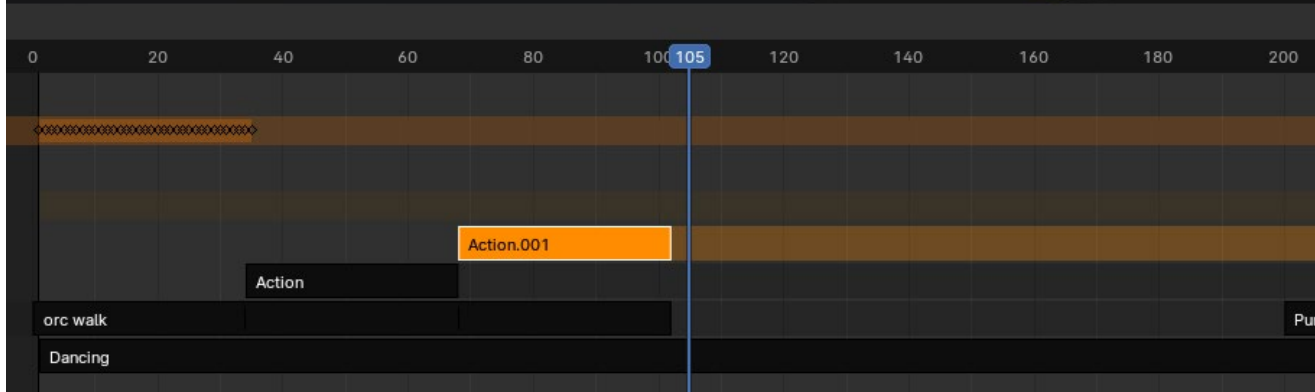
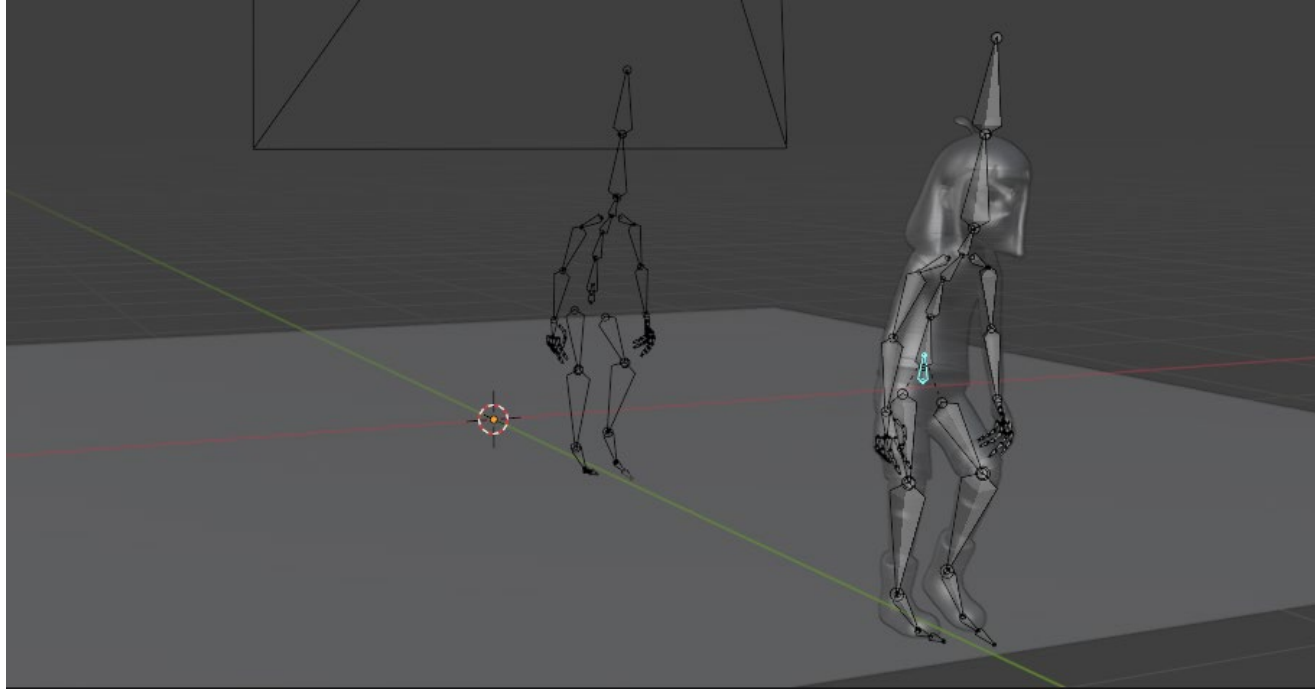
Mocap cleanup

Smoothing and adjusting motion capture data



Adjustment Layers 1

Adding values at cycle repeat

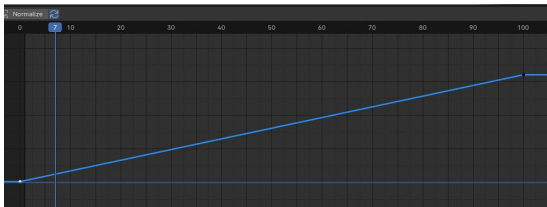


Adjustment Layers 2

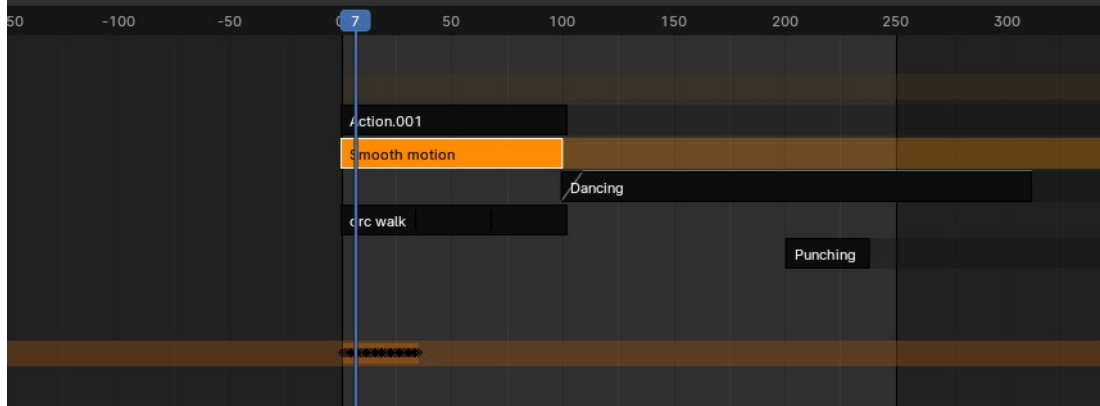
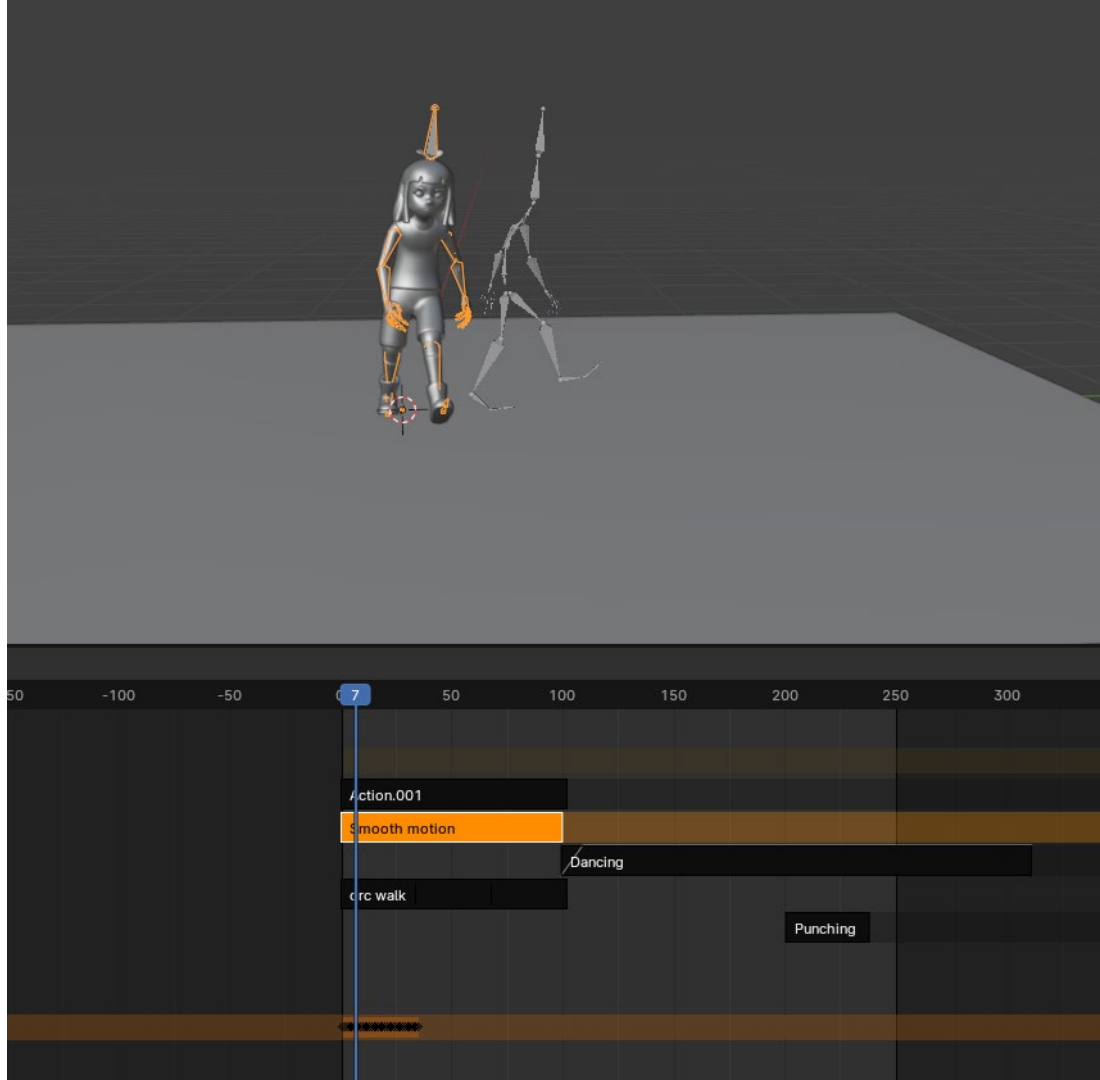
Splitting out movement and keyframing

Split motion

- Remove forward motion from walk cycle
- Add it back in as an additive layer keyframed positions
- Don't forget to use linear curve for new added motion:

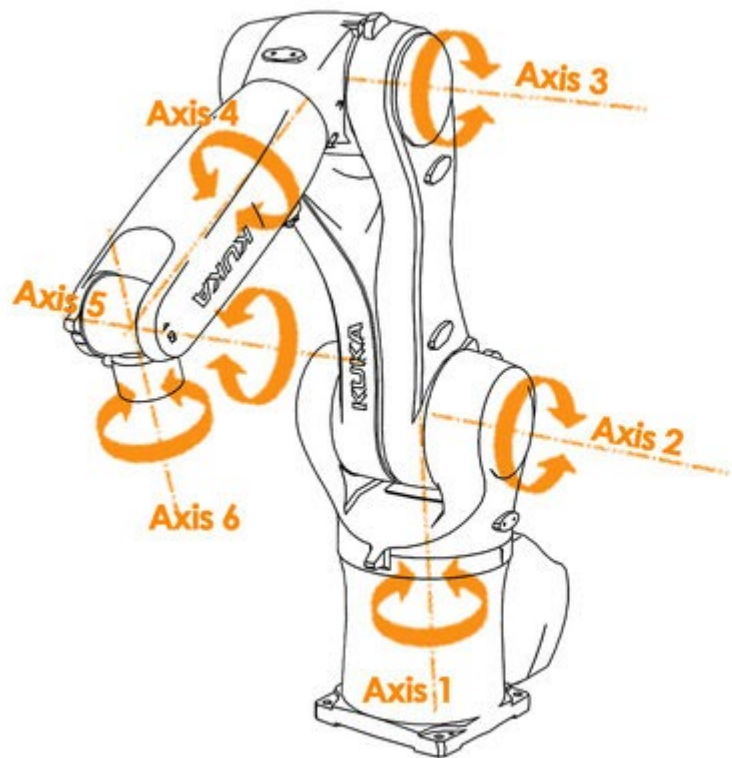


- Can rotate over the top and direction is maintained

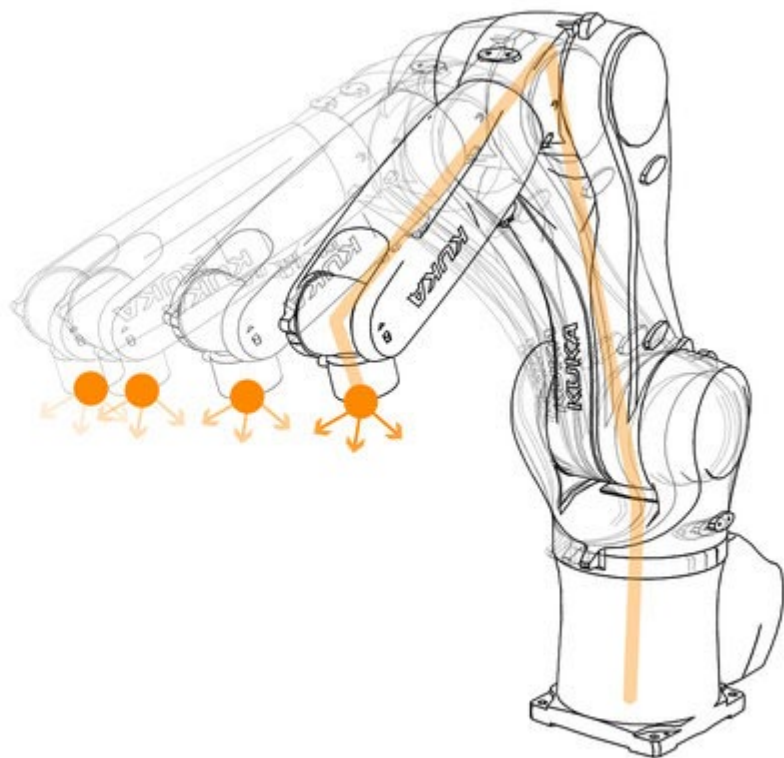


IK vs FK Control Rigs

Set up character and add motion




Forward Kinematic (FK) Solution



Inverse Kinematics (IK) Solution

<https://substance3d.adobe.com/plugins/mixamo-in-blender/>



Mixamo add-on for Blender

This Blender auto control-rig add-on works with characters that have been auto-rigged with the Mixamo service. The add-on provides a one-click solution to create an IK control rig and to bake animations in and out of the character control rig and skeleton.

[Get the Add-on](#)

The Mixamo add-on for Blender is subject to the [GNU General Public License, version 3.0](#).

Creating Control Rig

- Select Hierarchy for your character
- Copy and Paste to Duplicate
- Create a Control Rig for second character, and reset position
- Select first character armature, go to Object -> Animation -> Bake Action, and bake to POSE, with “only selected bones” OFF



- Copy animation from first character to second
- You can now apply adjustments or directly edit animation using IKs

