3D Character Animation

College of Imaging Arts & Sciences — School of Design

3D Character Animation

Introduction

3D character animation teaches students the basic principles of char- acter animation and applies them to their own 3D work. Projects will let students to review and reinforce skills learned in pre-request courses, which includes 3D Animation software and animation workflow.

In this course students will learn the essential principles of animation. Through hands on projects, you will experience several key techniques of animation, including:

• Workflows, Pipelines of Production
• 12 Principles of Animation
• Reference taking
• Rotoscoping
• Walking circle
• Lip sync
• Dialogue

We will also be looking at the technical and historical evolution of 3D animation to help you understand this field and industry.

Workflow

How to speed up your animation workflow?

https://www.youtube.com/watch?v=FM8fXYZ-6u0

Workflow is a key for successful animation work

Workflow

01. Block out key poses

When it comes to the art of animating don't rush ahead and attempt to refine the motion of each limb before you move onto the next. Focusing on one area at a time will mean you are not seeing the bigger picture, and elements will move at different speeds and you'll end up with unnatural-looking action.

For an animation to work everything has to sing to the same tune, so viewing the character as a whole and focusing on the larger movements is always the best starting point.
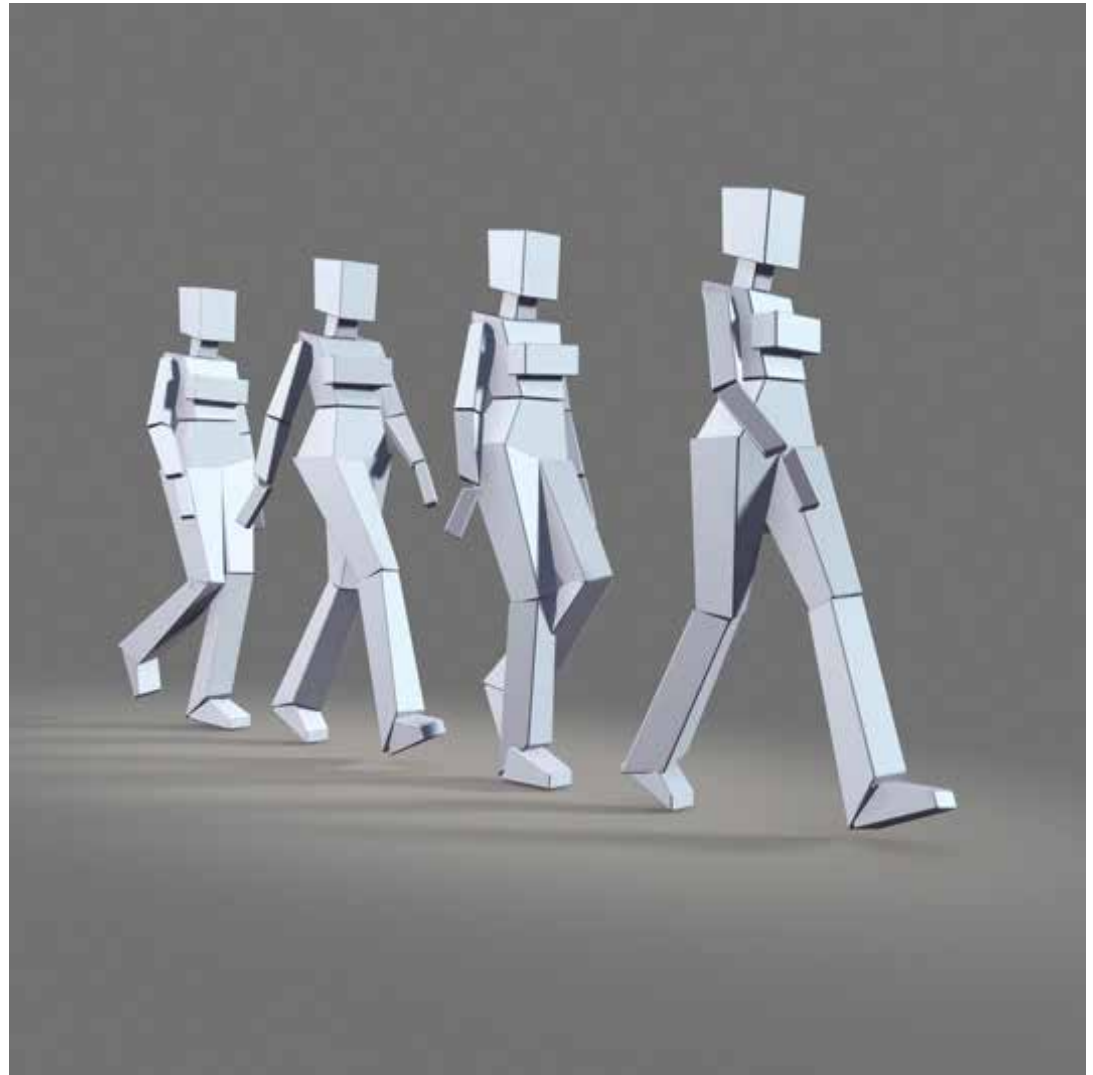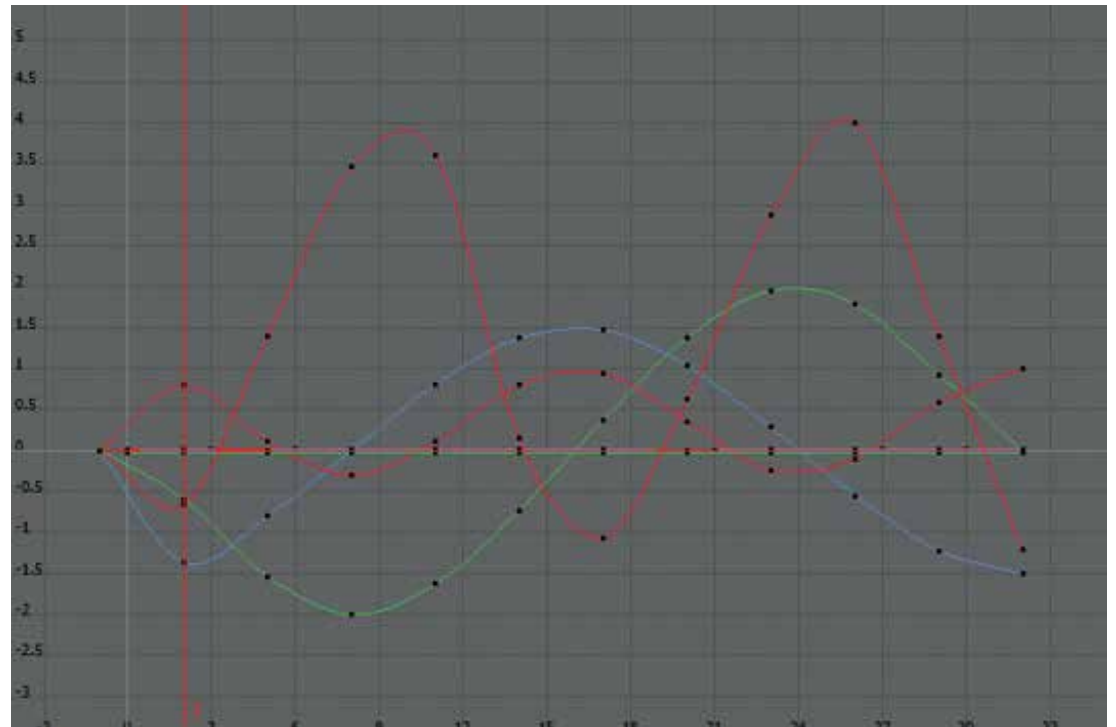
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02. Work on animation tangents

Placing keyframes is just half the work
involved with 3D animation,
and you will find it difficult to remain in
control if you are using keys to also control
the flow of each motion. Adding more and
more keyframes to control the speed of each
movement or rotation will result in a clogged
scene, and an unnatural motion.

Before you become stressed because your
animation is too angular, try and experiment
with the animation curves and tangents.
Each key has its own tangent to play with,
and by adjusting these you can control
the speed of each motion between keys,
allowing you more flexibility than simply
adding more and more keys to the scene.

03. 12 Principles of Animation.

When you consider your approach to the sequence or movement you are working on, make sure you remember to plan your three stages: Anticipation, Action and Reaction. Almost every movement has some degree of this.

For example, you bend your knees before you leap and you bring your arms back before you throw something. This is the Anticipation. The Action is then throwing or leaping with the Reaction being when you land and bend your knees again, or the arm swings around your body after the object has been thrown. This approach is also true of facial expressions, particularly extreme ones and can be exaggerated for comic effect.

https://www.youtube.com/watch?v=l-KtwW6eptM

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04. Recycle and reuse animations.

This tip can be applied to any area of CG and I have talked about it at length in previous tutorials concerning models and textures. You can, however, apply this principle to animation too.

A good walk or run cycle, for example, can take time to create, so once you have one in the bank make sure to use it to start your next project. With the main movement in place you can then focus on the variety and timing to make it more unique to your current character.

05. Offset keyframes to achieve secondary animation

Achieving the natural flow of something dragging behind your character, like a tail, can be tricky. The root remains fixed to the pelvis, but the motion then has to follow through to the tip like a wave. A quick way to achieve this movement is to animate the base, and then copy the keyframes to the rest of the joints all the way to the tip.

Initially, this will give them all the same action, but you can then go in and edit the keyframe on each one, shifting them forward a frame or two. This essentially delays that initial action on the higher joints, giving you the wave like motion that brings, for example, a tail to life.
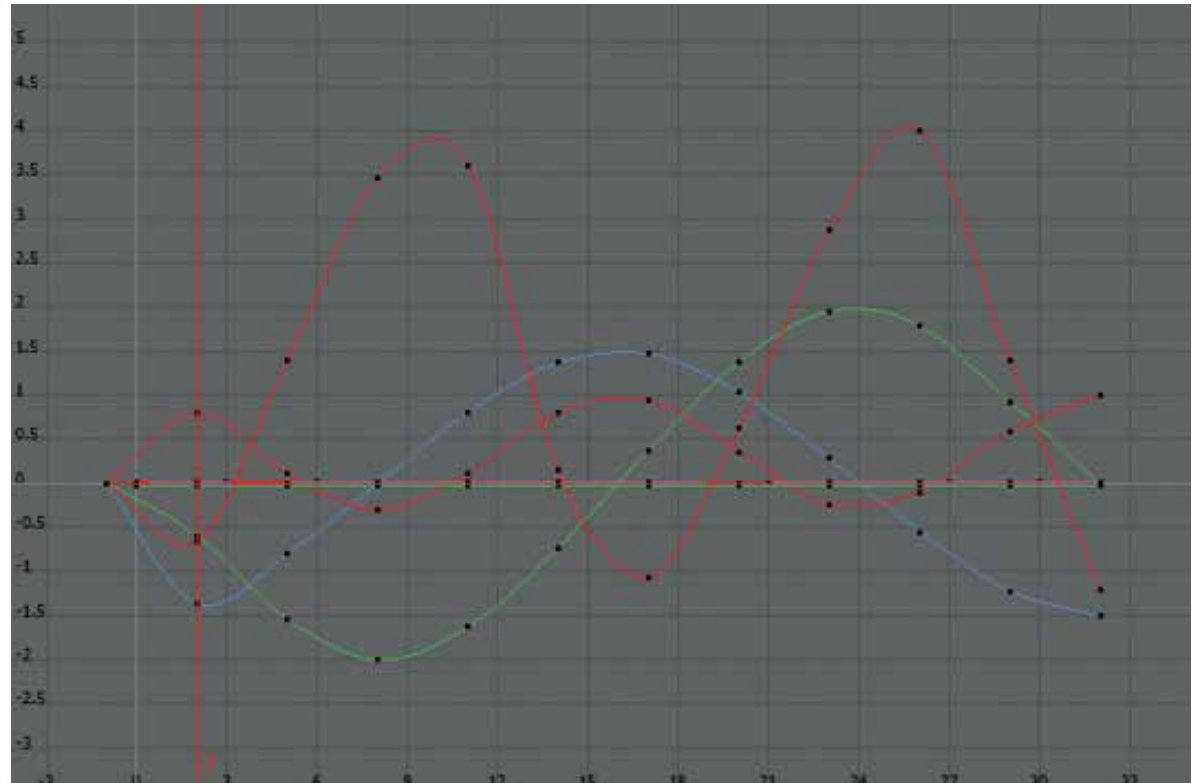
06. Animate the face in the final stage

I mentioned earlier how it important is to work on the character as a whole, and block out the main poses before you refine the motion. This should apply to the body first, and any facial animation tackled at the end of the animation.

It's important to concentrate on the body language initially, as it plays a huge role in the way we read what a character is trying to say and can convey how they are feeling.
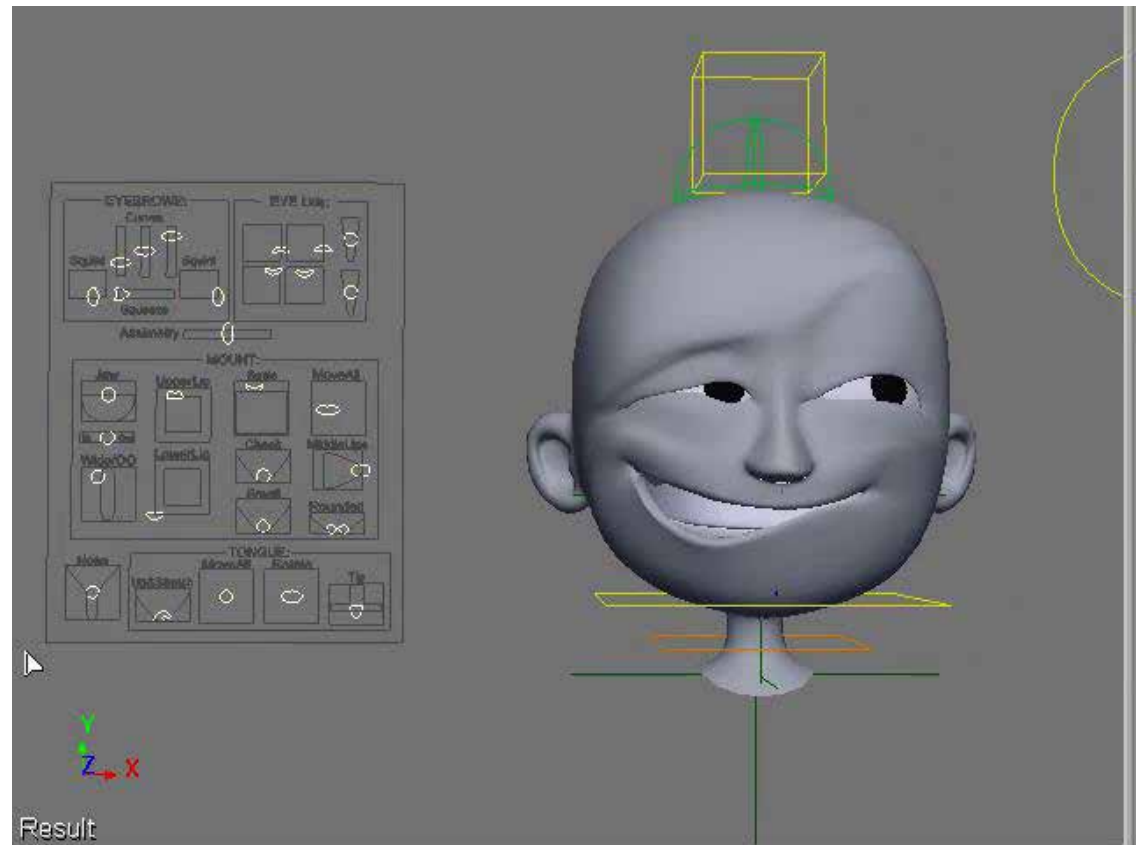
Use a good, flexible and reliable rig

Animating successfully in 3D isn't just down to the talent of the animator. Most of what you can achieve relies heavily on the rig you're using.

A quick and generic system will give you the main tools to use, but in order to give your character that edge, the rig needs to be tailored to their specific traits. An unprofessional rig can also add to your workload. If much of the underlying constraints and systems are easily accessible you could accidentally be editing, resulting in a broken rig.

The best rigs are the ones which leave the animator to animate. It's best if you can pick up the character and move it around without any complicated systems to contend with, or constant trips to the technical artist because the arm has suddenly jumped in the scene.
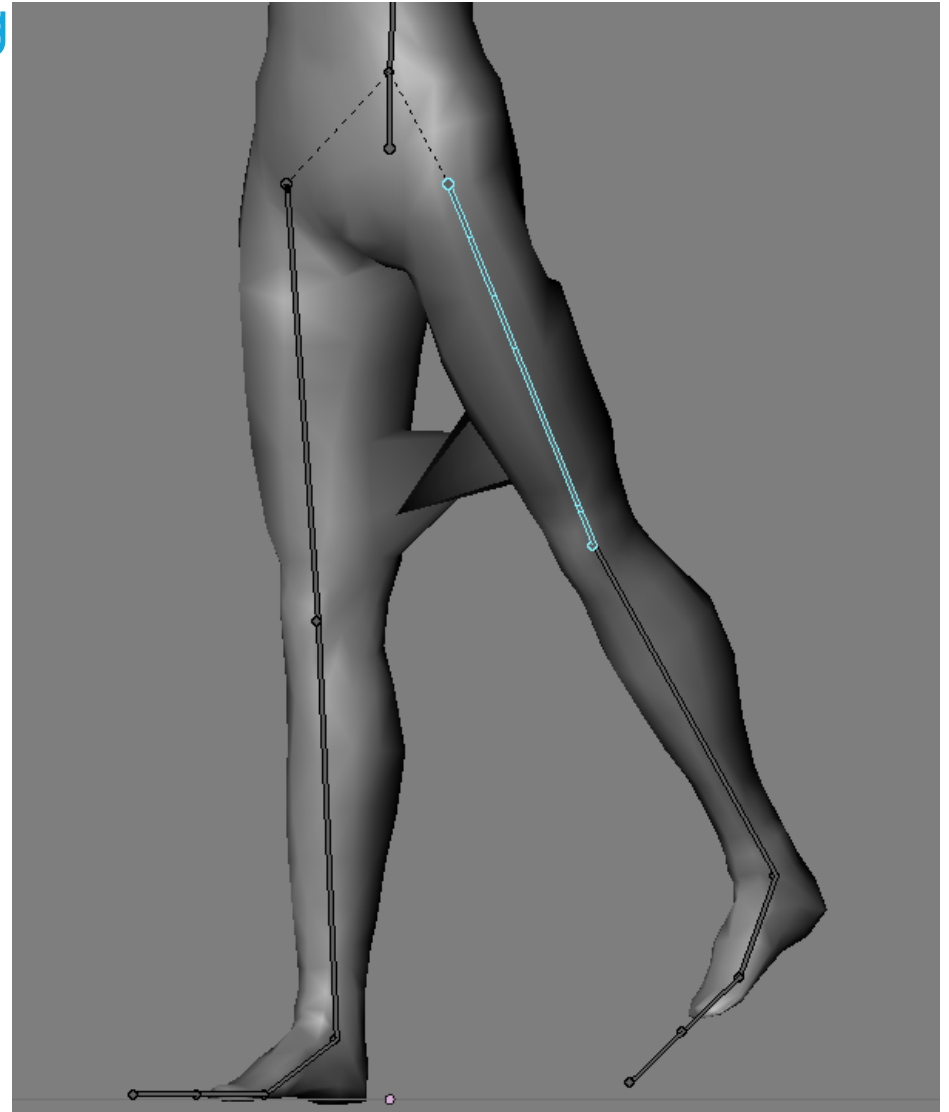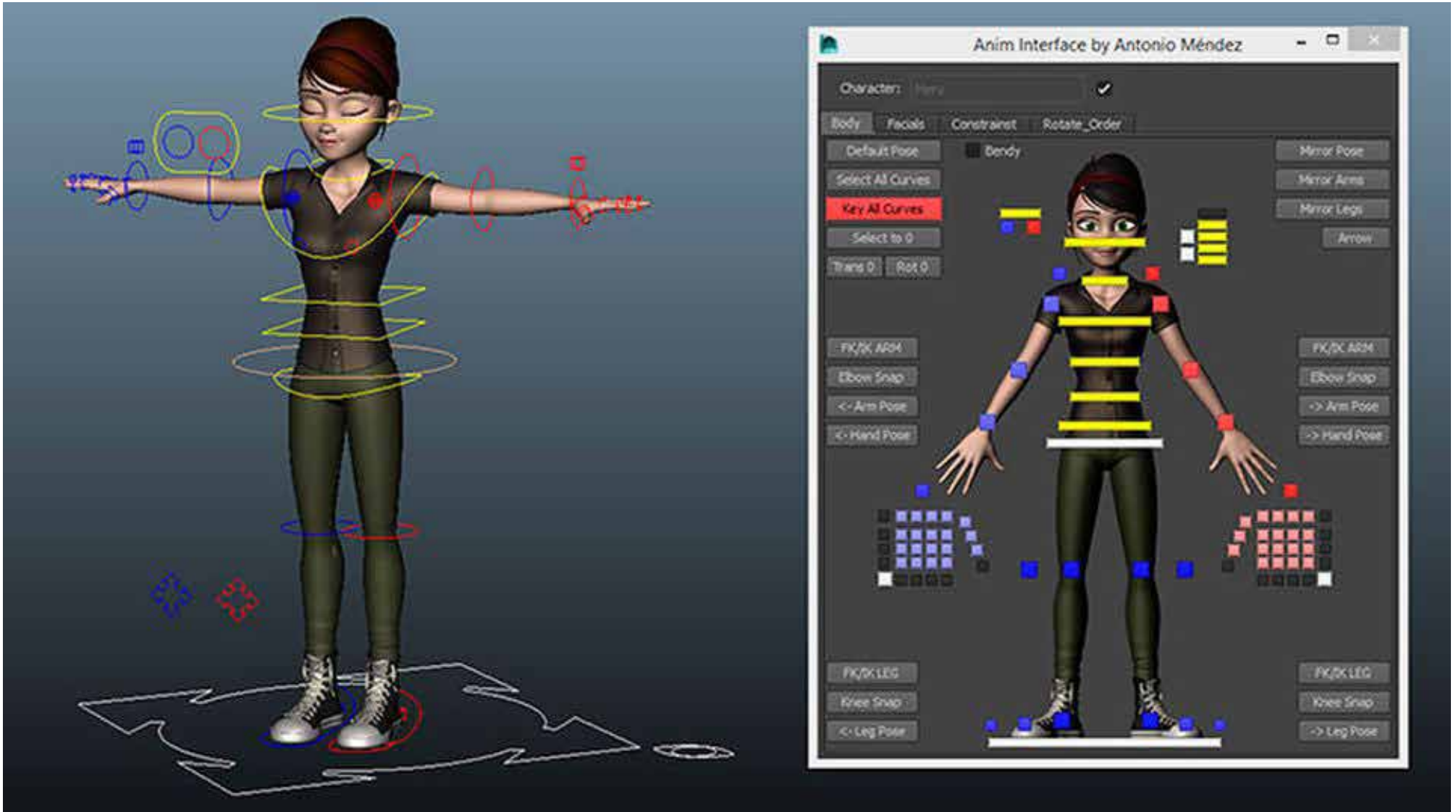
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You CAN:
You can use the character for practise and educational purposes.
You can use the character to show your work in your demo reel, portfolio, on your website, etc.

You CAN'T:
You can't use the character rig or any part of it for commercial purpose, like short films, movies or any content with financial gain.
You can't use the character rig without giving the appropriate credits for "meryproject.com" in your works. You must put the credits into the video or the description.
You can't use the character rig to create any pornographic, sexually explicit, violent, racist or otherwise immoral content.
Meryproject.com won't be responsible for the content made with the character.
You can't assign licenses or sublicenses for this character rig or any part of it.

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Mery Rig:
https://vimeo.com/99567750

Professional Animation Reel
https://vimeo.com/16314825

Animation Reel
https://vimeo.com/117136989