

Week_29__animation

Welcome Trinity Computer Animation students
04/24/2024

Today we will continue with our Blender Software Series,
First we will review the grease pencil, then expand our knowledge of animation with blender, lastly we will watch a training video and have a demo about Animating 'Bones' (Armature)...

Where can I get more information about blender, and how to make things work within blender?

Answer: the on_Line Blender Documentation -

(Short) demo from Coach Arthur.

[Www1.docs.blender.org/manual/en/latest](http://www1.docs.blender.org/manual/en/latest)

<https://docs.blender.org/manual/en/latest/>

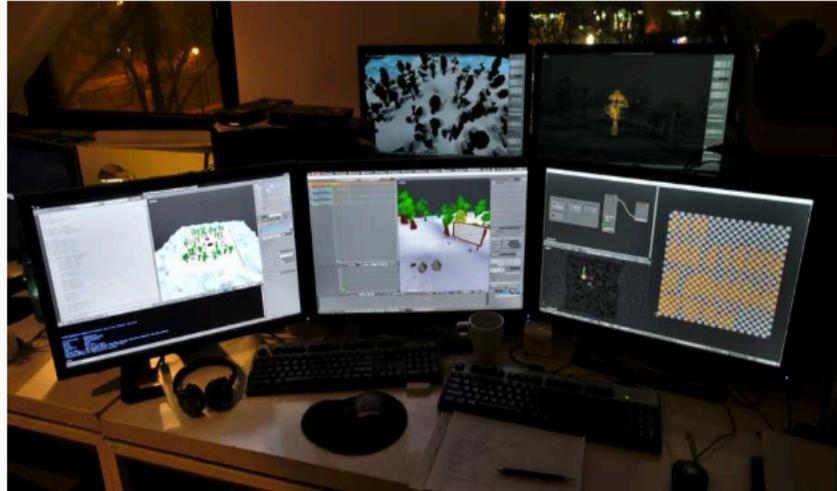
The screenshot shows the Blender 3.5 Reference Manual homepage. The browser tabs include "blender tutorial videos for begi" and "Blender 3.5 Reference Manual". The address bar shows the URL "https://docs.blender.org/manual/en/latest/". The page features a blue header with the Blender logo and a search bar. A dark sidebar on the left contains a navigation menu with sections like "GETTING STARTED", "SECTIONS", and "3.5" / "English". The main content area has a breadcrumb "Blender 3.5 Reference Manual", a title "Blender 3.5 Reference Manual", and a welcome message. It lists offline usage options: "Download the manual as web pages (HTML)" and "Download the manual in an e-book format (EPUB)". Below this is a "Getting Started" section with links for "About Blender", "Installing Blender", "Configuring Blender", and "Help System". A "Sections" section is partially visible at the bottom, showing icons for various Blender features.

Configuring Blender:

The screenshot shows the "Configuring Peripherals" page in the Blender 3.5 Reference Manual. The browser tabs include "blender tutorial videos for begi" and "Configuring Peripherals — Blen". The address bar shows the URL "docs.blender.org/manual/en/latest/getting_started/configuration/hardware.html". The page features the Blender logo and a search bar. The main content area has a breadcrumb "Configuring Peripherals" and a section header "Displays". The text below the header reads: "A full HD display or higher is recommended. Multi-monitor setups are supported, and workspaces".

- About Blender
- Installing Blender
- Configuring Blender
 - Introduction
 - Configuring Peripherals
 - Displays
 - Input Devices
 - Head-Mounted Displays (Virtual Reality)
 - Defaults
- Help System
- SECTIONS
 - User Interface
 - Editors
 - Scenes & Objects
 - Modeling
 - Sculpting & Painting
- 3.5
- English

A full HD display or higher is recommended. Multi-monitor setups are supported, and workspaces can be configured to span multiple monitors.



Example of Blender's multi-monitor support.

Input Devices

Input Devices

Blender supports various types of input devices:

- Keyboard (recommended: keyboard with numeric keypad, English layout works best)
- Mouse (recommended: three button mouse with scroll wheel)
- NDOF Device (also known as *3D Mouse*)
- Graphic Tablet

Note

If you don't have a middle mouse button or numpad, you can emulate these in the [Input Preferences](#).

Mouse

Mouse Button Emulation

If you do not have a 3 button mouse, you will need to emulate it by checking the option in the [Preferences](#).

The following table shows the combinations used:

| | | | |
|----------------|-----|---------|-----|
| 3-button Mouse | LMB | MMB | RMB |
| 2-button Mouse | LMB | Alt-LMB | RMB |

Trick: if your mouse has only 2 buttons -
Middle Mouse Down = [Alt] + [LMB]
(Left Mouse Button)

Next, let dig into a Blender Animation Tool -

Animation Tools

Insert Blank Keyframe

☰ Reference

Mode: Draw Mode, Edit Mode, Sculpt Mode

Menu: Stroke • Animation • Insert Blank Keyframe (Active Layer) Stroke • Animation • Insert
Blank Keyframe (All Layers)

Shortcut: Shift-I

Active Layer

Add a new blank keyframe to the active layer at the current frame. If there is already a keyframe at the current frame, a new blank keyframe will be added on the next frame.

All Layers

When enabled, Blank keyframe will be created on all layers, not only the active one.

Duplicate Active Keyframe

☰ Reference

Mode: Draw Mode, Edit Mode, Sculpt Mode

Menu: Stroke • Animation • Duplicate Active Keyframe (Active Layer) Stroke • Animation • Duplicate Active Keyframe (All Layers)

Delete Active Keyframe

☰ Reference

Mode: Draw Mode, Edit Mode, Sculpt Mode

Menu: Stroke • Animation • Delete Active Keyframe (Active Layer) Stroke • Animation • Delete Active Keyframes (All Layers)

Shortcut: Shift-X

Deletes the last keyframe in the Dope Sheet or the current keyframe if you are on one.

Interpolate Sequence

☰ Reference

Mode: Draw Mode, Edit Mode

Menu: Grease Pencil • Interpolate Sequence

Shortcut: Shift-Ctrl-E

Interpolate strokes between the previous and next keyframe by adding *multiple* keyframes. A breakdown keyframe will be added on every frame between the previous and next keyframe.

Bake Mesh to Grease Pencil

☰ Reference

Editor: 3D Viewport

Mode: Object and Pose Modes

Menu: Object ▸ Animation ▸ Bake Mesh to Grease Pencil...

Converts each frame of a mesh animation within a selected frame range to a Grease Pencil object keyframed strokes. The *Bake Action* operator computes the final animation of the selected objects with all those modifiers, drivers, and constraints applied, and keyframes the result.

Target Object

Select the target Grease Pencil object for the baked animation or a new one if there is nothing yet.

Start Frame, End Frame

Start/End frame for the baking process.

Step

Frame steps for the baking process

Thickness

Strokes thickness.

Threshold Angle

Threshold value that determine the strokes end.

Stroke Offset

Sets offset to separate strokes from filled strokes.

Only Seam Edges

Convert only edges marked as seam.

Export Faces

Convert faces as filled strokes.

Only Selected Keyframes

Convert only the selected keyframes.

Target Frame

Target destination frame for the baked animation.

Projection Type

Sets the projection type to use for the converted strokes.

Next, let introduce the topic of "Rigging" in a little bit more detail.

Rigging

Introduction

Animation

Animation is making an object move or change shape over time. Objects can be animated in many ways:

Moving as a whole object

Changing their position, orientation or size in time;

Deforming them

Animating their vertices or control points;

Inherited animation

Causing the object to move based on the movement of another object (e.g. its parent, hook, armature, etc.).

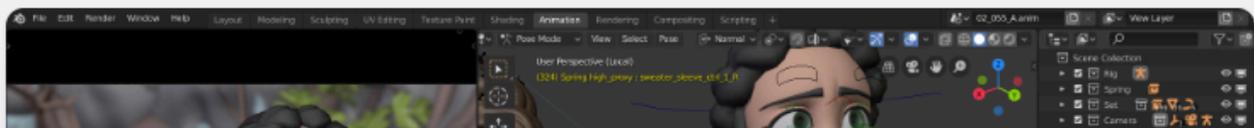
In this chapter, we will cover the first two, but the basics given here are actually vital for understanding the following chapters as well.

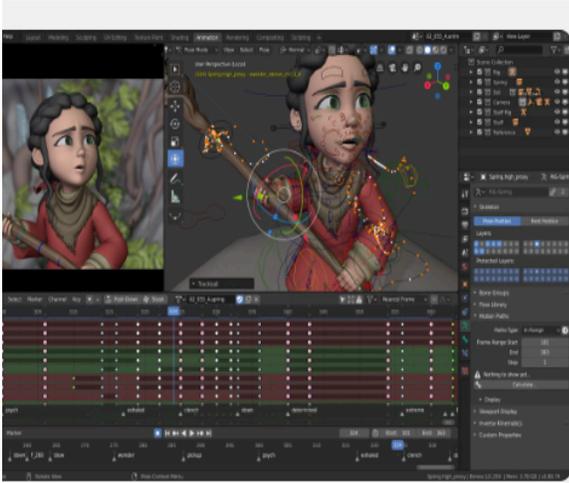
Animation is typically achieved with the use of [keyframes](#).

Animation Toolset

Blender's animation feature set offers:

- Character animation pose editor
- Non Linear Animation (NLA) for independent movements
- Forward/inverse kinematics for fast poses
- Sound synchronization





Animation & Rigging

Thanks to the high quality rigging and animation tools, Blender is being used for numerous short films, advertisements, TV series and feature films now.

- Envelope, skeleton and automatic skinning
- B-spline interpolated bones
- Curve editor and dope sheets
- Custom bone shapes for fast input
- Sound synchronization

Next we will watch a Video:

<https://youtu.be/kxcOzTIBIsI>

We are going to watch this (short video):

<https://youtu.be/UXqq0ZvbOnk>

Homework: watch this Rigging (short) training video:

<https://youtu.be/yhUwuSzPjK4>

In the coming weeks we will continue our blender series and download a rig to work with...