

# MOTION GRAPHICS

# WHAT IS MOTION GRAPHICS

- ▶ Motion graphics refer to animated graphic design. They are pieces of animation or digital footage which create the illusion of motion. Graphic designers usually combine them with audio for multimedia projects. Have a look at this motion graphic video featuring the title sequence of a film called Big Fish.
- ▶ Motion graphic videos usually have animated text at the least. They can also have mood setting music, voiceovers, and other animated shapes and more. These videos successfully emphasise a point or drive a certain action by appealing to human emotions and needs.
- ▶ ***Motion graphics***, as explained earlier, involve animating a graph, an infographic, or even web design. Check out this GIF featuring motion graphic elements denoting the city of London. As you can see, motion graphics are associated with setting abstract objects, text, and other graphic elements, into motion.

- ▶ ***Motion graphics***, as explained earlier, involve animating a graph, an infographic, or even web design. Check out this GIF featuring motion graphic elements denoting the city of London. As you can see, motion graphics are associated with setting abstract objects, text, and other graphic elements, into motion.
- ▶ In contrast, ***animation*** as a specific art form focuses more on cinematic effects and storytelling techniques to craft a narrative. Check out this video talking about the famous Mona Lisa by Leonardo da Vinci. While this video is animated, it does not use motion graphics.

# HISTORY OF MOTION GRAPHICS

## ▶ **Motion Graphics: The Prehistoric Age**

- ▶ While there is speculation that flipbooks have existed as early as the 16th century, the oldest known flip book appeared in 1868, patented by John Barnes Linnett. One of the first linear forms of animation consists of numerous hand-drawn images that combine to create the illusion of motion when pages are quickly flipped. Similar to the zoetrope, which used circular movement to simulate motion, flipbooks were popular gifts for children, and these rustic forms of motion graphic design were largely viewed as nothing more than toys.

However, some of the earliest film projectors built on the idea of the flipbook, creating smoother, more advanced motion graphics using better technology. The oldest surviving “motion picture” was screened in France in 1888, featuring 2.11 seconds of ladies and gentlemen walking in a park. While initially considered a curiosity, this “film” and other similar works would kickstart new forms of motion graphics that would change the world forever.

## ▶ **Motion Design: The Roaring Twenties**

- ▶ While motion graphics slowly continued to evolve into the 20th century, an unprecedented boom came in the 1920s. The First World War had just devastated much of Europe and many turned to the arts to try and capture, or understand, the complicated emotions of the time. This led to a heavily experimental period where artists incorporated new technology, like motion graphics, into their art to try and convey feelings that have never been felt before. Examples include:
  - **Marcel Duchamp**, a revolutionary French artist whose experimental film, "Anemic Cinema," used spinning graphics, or "rotoreliefs" (painted spinning disks), to create the illusion of 3-D animation.
  - **Walter Ruttmann**, a German director of abstract films "Lichtspiel: Opus I" and "Opus II" (Opus I was also the first publicly screened abstract film). In Opus I, Ruttmann featured shapes and colors flowing in and out of the screen, using glass plates painted and re-painted under a camera.
- ▶ Meanwhile, America was facing a decade of unprecedented prosperity. With more money and time to spend at the theater, animation quickly grew from a carnival novelty to a full-blown industry. Animation titans like Disney and Warner Bros. got their start in this decade and popularized motion graphics for a bigger audience than ever before. Suddenly, audiences had time for feature films, and production companies needed to update their motion graphics at a rapid pace to outshine their competition. As a result, motion graphics and animation entered a Golden Age of innovation, whose momentum continues to the present day.

## ▶ Modern Motion Graphics

- ▶ Computer animation was first developed in the 1960s and would come to change the landscape of motion graphics forever. However, traditional graphic design continued to thrive in the latter half of the 20th century. Saul Bass was a notable graphic designer and major pioneer in motion graphic design who helped popularize motion graphics for even non-animated films. He is most remembered for his simple but effective feature film title sequences for popular films such as “Psycho” and “The Man With The Golden Arm.”
- ▶ John Whitney, meanwhile, is considered one of the fathers of computerized animation. His company, called “[Motion Graphics Inc.](#),” is responsible for popularizing the term “motion graphics” in America. He is renowned for using a mechanical analogue computer to animate unique title sequences, including one of the most famous title sequences in cinema history, for the film “Vertigo”, a collaboration with Saul Bass that featured swirling graphics growing larger and smaller.
- ▶ Artists such as Stan Brakhage began to incorporate new techniques with new technology in their use of motion graphics. A pioneer in experimental film, Brakhage’s techniques included innovations such as scratched emulsion, rapid cutaways, painting directly onto celluloid, and using multiple exposures to invent new modes of film expression.
- ▶ The works of Saul Bass, Stan Brakhage, and many more helped inspire a new generation of motion design as the art form developed into the 21st Century. For example, Kyle Cooper, who has worked on films such as Se7en and the Spiderman trilogy, used Brakhage’s techniques alongside digital effects and animation software programs in his title design. Directly inspired by Saul Bass, Cooper’s extensive film career and innovative film titles demonstrate the culmination of over 200 years of motion graphics innovation.

# LINEAR AND NON LINEAR EDITING

## ▶ **Linear Video Editing Method**

- ▶ Linear video editing is a process of selecting, arranging and modifying images and sound in a pre-determined, ordered sequence – from start to finish. Linear editing is most commonly used when working with videotape. Unlike film, videotape cannot be physically cut into pieces to be spliced together to create a new order. Instead, the editor must dub or record each desired video clip onto a master tape.
- ▶ For example, let's say an editor has three source tapes; A, B and C and he decided that he would use tape C first, B second and A third. He would then start by cutting up tape C to the beginning of the clip he wants to use, then as he plays tape C, it would also be simultaneously recording the clip onto a master tape. When the desired clip from tape C is done, the recording is stopped. Then the whole process is repeated with tapes B and A.

- ▶ The nonlinear video editing method is a way of random access editing, which means instant access to whatever clip you want, whenever you want it. So instead of going in a set order, you are able to work on any segment of the project at any time, in any order you want. In nonlinear video editing, the original source files are not lost or modified during editing. This is done through an edit decision list (EDL), which records the decisions of the editor and can also be interchanged with other editing tools. As such, many variations of the original source files can exist without needing to store many different copies, allowing for very flexible editing. It is also easy to change cuts and undo previous decisions simply by editing the EDL, without having to have the actual film data duplicated. Loss of video quality is also avoided due to not having to repeatedly re-encode the data when different effects are applied.
- ▶ Nonlinear editing differs from linear editing in several ways.
  - First, video from the sources is recorded to the editing computer's hard drive or RAID array prior to the edit session.
  - Next, rather than laying video to the recorder in sequential shots, the segments are assembled using a video editing software program. The segments can be moved around at will in a drag-and-drop fashion.
  - Transitions can be placed between the segments. Also, most of the video editing programs have some sort of CG or character generator feature built in for lower-thirds or titles.
  - The work-in-progress can be viewed at any time during the edit in real time. Once the edit is complete, it is finally laid to video.
  - Non-linear video editing removes the need to lay down video in real time. It also allows the individual doing the editing to make changes at any point without affecting the rest of the edit.

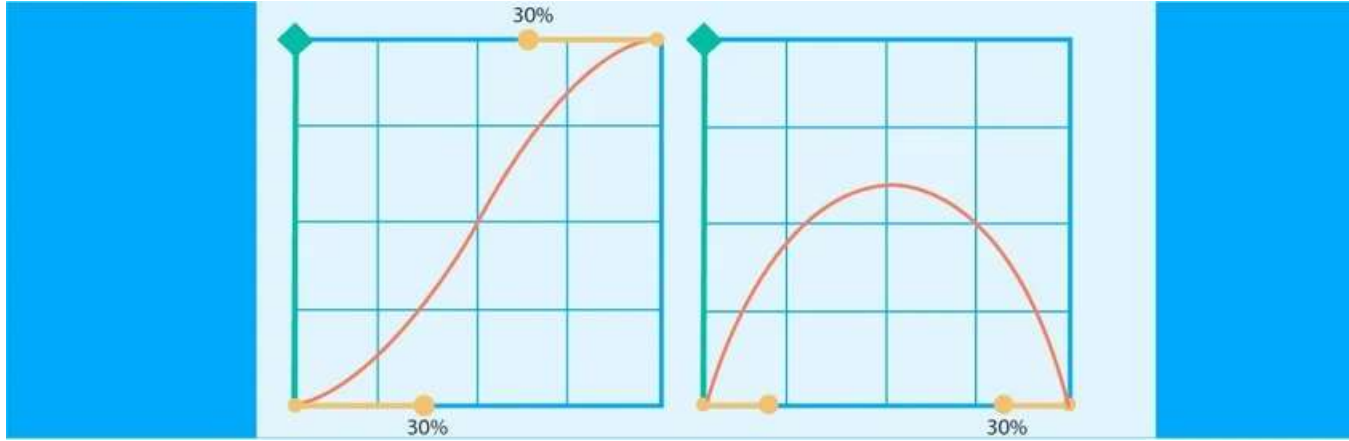


# HYPERLINK

- ▶ A hyperlink is a bit of text, an image, or a button in a hypertext document that you can click. A hyperlink may include a link to another document or to another part of the current page. Hyperlinks are found on virtually every webpage to help navigate readers to other pages and websites.
- ▶ Other types of files may also include hyperlinks. PDF files and Word documents often include hyperlinks to other parts of the document or an outside website. Presentation files may use hyperlinks to help a presenter to jump to a specific slide. eBooks include hyperlinks for readers to quickly jump to the start of a chapter from the table of contents, view an endnote by tapping its reference, or open another book by tapping a link.

# What is a Graph Editor in After Effects?

- ▶ The Graph Editor outlines property values using a **two-dimensional graph**, wherein the composition, time is represented horizontally, i.e., from left to right. On the other hand, in layer bar mode, the time graph represents only the horizontal time element without displaying a graphical, vertical representation of changing values.
- ▶ There are two ways to display and read the information, the speed graph and the value graph. Both are unique in terms of **visual representation** and in how they can be manipulated. That's pretty straightforward to understand, right? No.
- ▶ The difference between the two graphs is often pretty confusing to animators who have just stepped into the world of motion graphics design.
- ▶ So, here's a summary of the two:
  - The Speed Graph is a visual representation of the speed of the movements, out of the possible 100
  - The Value Graph is a visual representation of the property's actual value that is being transformed in the graph editor.



- When you go toward the top of the timeline panel, you'll notice an icon looking like a graph, right next to the motion blur; simply click on this button.
- Press Shift + F3.
- The Graph Editor is selected once it turns blue.
- ▶ **Types of Graph Editor**
- ▶ The default keyframes are sometimes not what you need while working on a particular project. So, if you want to add a pop of [life to your animations](#), you need to have control over what happens between the keyframes.
- ▶ A rush of speed out and then an immediate halt, a bouncing ball, text overshooting back and forth; well, these are only a few examples of what the graph editor can do. Keep reading to find out how to edit graph in After Effects.

- **Easy Ease**
- Put something in your composition.
- Hit “P” to pull up the Position or toggle the arrow down and right-click on Position > Separate Dimensions.
- Set two keyframes and move your object from left to right. If you're not too sure about it, move it back to where it started.
- Select both keyframes, and Easy Ease them by hitting the F9 key or right-click on the keyframe > Keyframe Assistant > Easy Ease.
- Now hit the Shift + F3 keys to open the graph editor or click on the graph icon.
- You'll now notice a soft “S” curve. Isn't it a lot better than not putting any ease on an animation?
- ▶ **Extreme Ease**
- Now take those Bezier handles and drag them to create a more prominent “S.”
- The steeper the line, the quicker your object will move toward the center.



▶ **Explode out and Ease in**

- Now take that first keyframe and drag the handle towards the top.
- The steep angle will pop out from the start and ease to an end.

▶ **Ease out**

- Easing out makes the animation start more quickly than the linear ones, and it additionally has deceleration at the end.
- It is a great curve to make something fall.



# ROTOSCOPING

- ▶ Rotoscoping refers to the process of separating foreground elements from the background of a shot by drawing a series of mattes, frame by frame. While notoriously tedious, the technique can add visual interest to your project. Breaking a shot into individual layers allows you both to animate their properties separately and add additional assets between them, providing nearly unlimited creative applications.
- ▶ Rotoscoping is simple in theory, but difficult in practice. Due to the frame-by-frame nature of the process, it's easy to end up with “chattering” mattes whose jiggly edges destroy the effect. So how do you achieve consistency?
- ▶ Whether you're an animator, motion graphic designer, VFX artist, or videographer, you'll probably need to rotoscope at least one shot in your career. In this post, we've gathered the resources you'll need to get started with three of the most popular rotoscoping methods in [Adobe After Effects](#): masks, the Rotobrush, and Mocha.

- ▶ Rotoscoping is technically a form of animation, so it's helpful to apply traditional animation principles here. An essential concept in both disciplines is the idea of "keyframes," the frames containing the most dramatic movements or poses. Character animators begin a sequence by drawing the keyframes and then going back to smooth out the motion with "in-betweens."



## ▶ **What is stop motion animation?**

- ▶ Stop motion animation is an advanced flipbook-style form of animation. It involves photographing and then physically manipulating objects within your frame. As each frame is played in sequence, the technique creates the effect of an object moving itself. Stop motion animation is a technique whose secret lies between each frame of the action. Effortlessly simple in its final form, the flow and flourish of stop motion photography belies the painstaking attention to detail being paid between each snap of the set-up.

## ▶ **Types of stop motion animation.**

### ▶ **Object motion.**

No budget? No problem - grab whatever's handy and bring it to life.

**Examples:** The Humpty Dumpty Circus (1898)

### ▶ Claymation.

Sculpt characters and props from modelling clay to create strange new worlds.

**Examples:** Morph, Wallace & Gromit

### ▶ **Pixilation.**

Bring live actors into the mix - and prepare to hold that pose for still photography.

**Examples:** Hôtel électrique (1908)

### ▶ **Cutout-Motion.**

Craft your cast and their surroundings from paper and shoot top down in two dimensions.

**Examples:** The Spirit of Christmas (Matte Stone and Trey Parker)

▶ **Puppet Animation.**

Push the aesthetics of your project even further and create sophisticated puppets to pose in the frame.

**Examples:** Coraline, Kubo and the Two Strings

▶ **Silhouette Animation.**

Add a backlight to your cut-outs and bring secretive shadow-play into the mix.

**Examples:** The Adventures of Prince Achmed (1926), Papageno (1935)

▶ **stop motion animation.**

▶ To get started on creating your own mini masterpieces you'll need:

- **Digital camera.** Even a smartphone camera will do - obviously the higher in quality, the better.
- **Stand/mount.** An essential part of the operation, you'll need to mount the camera so it remains perfectly still throughout the production process. Luckily these aren't expensive.
- **Editing software.** Again, your phone will do in a pinch - but you'll need video editing software that can sequence your images and transfer the results as a whole file.
- **Objects to film.** Whether you're crafting intricate backdrops a la Reiniger or simply making household objects come to life, grab a few props and start shooting.

► **How to shoot in stop-motion.**

1. **Firmly frame your subject.** Make sure you're shooting at an angle that fits your subjects without letting in anything you don't want to include. Objects wandering in or around the edge of a shot will affect the final product.
2. **Adjust the lighting.** Shoot where the light is completely under your control - for example, under a desk light if you're shooting two-dimensional objects. Changes to lighting over time will create an inconsistency to your levels as the shoot goes on on.
3. **Steady your shots.** Once your camera is set up, if at all possible, don't touch it again until your sequence is finished. Use a remote or a timer to snap each frame of the sequence, before resetting for a new angle or scene.
4. **Decide on your frame rate.** How long do you want to keep a single image in shot? At 24 frames per second, you'll need 24 images - whether that's fewer different images during slow moments or up to 24 different frames to illustrate faster movements.
5. **Edit.** Move images into a sequencer and edit on the fly or dump the whole lot at the end of the shoot. Then you can go to town on things like fast vs slow motion and any accompanying sound or music.

- ▶ **Claymation** involves the sculpture and frame-by-frame manipulation of clay-based characters or objects. The most famous examples of this technique are cheese-loving, multi-Oscar-winning duo **Wallace & Gromit** along with other projects from Aardman Animations and the Stateside seasonal specials traditionally produced by Rankin/Bass.
- ▶ **Pixilation** applies the same technique to humans, who presumably suffer sore muscles after each shoot as they're tasked with making only minute movements between frames. One example of pixilation which made waves in the British music scene was the music video by The Maccabees, to accompany their song '**Latchmere**'.
- ▶ **Cutout-Motion** means taking two-dimensional objects (usually from paper) and animating their movements. The pilot episode of foul-mouthed phenomenon **South Park** was created in cutout-motion, a laborious process which co-creator Matt Stone described as "**hell on this earth**" - and which thankfully they've developed on into a system they find more comfortable.
- ▶ **Puppet Animation** is another specific stop motion creation, involving the crafting and manipulation of puppets to produce a certain charming kind of animated aesthetic. It's most famously used in the work of Laika, the studio behind cinematic successes **Coraline** and **Kubo and the Two Strings**.
- ▶ **Silhouette Animation** combines the use of cutout-motion and clever shadow play to produce fascinating frames of action. Pioneered by European studios during the 1920s, it's perhaps most famously used in the work of Lotte Reiniger, whose prolific career included more than 70 silhouette animation films retelling old folk tales.

# Features Of FCP

- ▶ Final Cut Pro is a revolutionary app for creating, editing and producing the highest-quality video. Final Cut Pro combines high-performance digital editing and native support for virtually any video format with easy-to-use and time-saving features that let you focus on storytelling.
- ▶ **Object Tracker and Cinematic mode.**
- ▶ **Unrivaled pro performance.**
- ▶ **Editing, audio, motion graphics, color grading, and delivery.**
- ▶ **Automatic HDR workflows for next-level creativity.**
- ▶ **Object Tracker and Cinematic mode.**

## ▶ ALPHA CHANNEL

- ▶ Think of alpha channels as an invisible fourth channel, which saves any transparency settings for the image. Alpha channels also allow you to isolate a certain section of your frame and control its opacity, so it can be edited and saved for later use. After Effects allows you to save one alpha channel per image or clip, which is also known as an RGBA.
- ▶ How to Export an Alpha Channel in After Effects
  1. First, launch After Effects and import the video clip that you wish to edit. Now look in the Composition panel and find the Transparency Grid button, which looks like a rectangular checkerboard. When you click on it, the background should become transparent and be replaced with grey and white checkers. You should only see the tree.
  2. Next, you'll need to add your edited composition to the Render Queue, so go to the Composition dropdown menu and select "Add to Render Queue" (you can also press Control+Command+M). Your new composition should appear in the queue near the bottom of your screen. Click on it to bring up the Render Settings, and select "Best" in the Quality section. Then, click OK.
  3. Now, go back to the Render Queue and find the Output Module section, which is located below Render Settings. Select "Lossless with Alpha", and then click on it to bring up the Output Module Settings.
  4. In this new window, you can select your output video format, with options like Quicktime, MPEG4, and H.264. Then, look at the Video Output section and make sure the Channels option is set to "RGB + Alpha." Click OK to apply these settings.
  5. Finally, click on the "Render" button to save your edited RGBA video, with the alpha channel enabled and the background removed. You can re-import the rendered file and layer it on top of another clip to create special effects and cool edits.