



VIRTUAL PRODUCTIONS
Workshop Series
Manual 03

Manual 03

Workshop Series

This manual is the final part of a series that covers various topics related to creating your own Virtual Production. Although the series focuses on Virtual Production, many of the steps are similar to those in other film production processes. However, there are a few key differences that are important to address for the sake of completeness in the pipeline.

In this manual, we will cover the organisation of scenes, cuts, and editing, as well as different ways to transition between scene cuts and how to organise the DaVinci Resolve project. We will also cover VFX and how we can utilise information captured during production, such as motion tracking and camera position, to enhance the visual effects. Additionally, we will go into great detail about Colour Correction, which is critical for achieving a uniform mood and tone and will reference the colour theory discussed in the second manual. Lastly, we will discuss sound and the extensive setup required for sound design in Virtual Productions.

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Chapter 01

Editing

Editing plays a crucial role in the filmmaking process by shaping the story, pacing, and emotional impact of the film. It involves selecting and arranging the shots captured during production, adding visual effects, sound effects, music, and dialogue to create a cohesive and engaging final product. The editor works closely with the director to bring their vision to life and often has a significant impact on the final version of the film. Besides technical skills, an editor must also have a strong understanding of storytelling and be able to make creative decisions that enhance the film's narrative and emotional impact.

Director & Editor Communication

Effective communication between the director and editor is critical to ensuring that the film meets the director's creative vision and goals. The director must be involved in the editing phase and work closely with the editor to make sure that the film reflects the intended creative vision in terms of style, tone, and pacing.

Some challenges that can arise in director and editor communication include:

- **Differences in creative vision:** The director may have a specific vision for the film, while the editor may have a different interpretation. This can lead to disagreements and conflicts during the editing process.
- **Time constraints:** Both the director and editor may work under tight deadlines, which can create pressure and stress that can affect their communication.
- **Communication breakdowns:** Misunderstandings or lack of clear communication can occur when discussing creative choices, making it difficult to move forward.
- **Ego clashes:** Both the director and editor may have strong personalities and egos, which can cause power struggles and conflicts.

The director and editor must prioritise establishing open communication and collaborating to achieve a cohesive vision for the film and overcome these challenges. It is also essential to have mutual respect and understanding of each other's creative perspectives. Effective communication and collaboration between the director and editor can result in a stronger and more impactful production. Some specific ways that the director can communicate effectively with the editor include:

- **Providing a clear vision and guidelines for the film:** The director should communicate their vision for the film and provide guidelines for the style, tone, and pacing of the film.
- **Regular check-ins and discussions:** The director and editor should have regular meetings to discuss the progress of the editing process and any changes that need to be made.
- **Collaborative problem-solving:** When challenges arise, the director and editor should work together to find solutions that meet the director's creative vision.
- **Mutual respect and understanding:** The director and editor should approach their collaboration with mutual respect and understanding, recognising that they both bring valuable skills and perspectives to the project.

By fostering effective communication and collaboration, the director and editor can create a stronger and more impactful film.



Editing

Organise Before You Start

Organising footage files is an essential aspect of the post-production process, as it guarantees a smooth and efficient editing process. Organised footage files assist editors in locating the footage they need, distinguishing between various takes and angles, and monitoring other relevant information such as camera settings and location. This simplifies the editing process, minimising the time spent searching for specific footage, and streamlining the workflow.

Here are some tips on how to organise your footage files:

- **Create a folder structure:** Create a folder structure that makes sense for your project. For example, you could have a main folder for the project and then sub-folders for each shooting day, scene, or camera angle.
- **Use descriptive file names:** Include the scene number, take number, and camera angle in your file names. Standardise this naming convention and ensure they are easily searchable: for example, if you begin your file name with the scene information, the files are naturally ordered to reflect the film's structure.
- **Use metadata:** Most modern cameras allow you to add metadata to your footage files. This can include information such as the camera settings, location, and date.
- **Back up your files:** Make sure to back up your footage files regularly, either to an external hard drive or to the cloud. Filmmaking is often expensive, and reshoots can be unaffordable!

By organising your footage files, you can save time and avoid frustration during the post-production process.



Our Data Structure

We have developed a VP Footage Wrangler that automatically groups together independent captured files such as audio, footage, and camera data from the same scene/take. It is important to note that there is not a one-size-fits-all approach, but we prefer the following structure:

[project_name]/RawFootage/[Shot]/[Take]

Davinci Resolve Media

The Media tab lets you reorganise video clips, rename them and organise them into separate “bins”, which function as folders. An important dataset is the Metadata information that can be linked to each file, containing information like scene, shot, and take.

The top right window is the media viewer. In this, the bottom panel shows your imported footage, and at the top left is where you can organise clips based on metadata or in bins.



[Organize Media in DaVinci Resolve](#)

Ingest & Organize Media in DaVinci Resolve - Workflow Tip for Beginners!

**“A place for everything,
and everything in its place.”**

Benjamin Franklin

Editing

The Storyboard Is Your Friend

Storyboard and previs footage can be useful tools in the editing process. The storyboard provides a visual plan for the film and can help the editor understand the director's vision for the project.

When editing, the editor can refer to the storyboard and previs footage to ensure that the final edit is consistent. However, reviewing the earlier decisions based on the acquired footage might be necessary. Differing choices made during the production phase (i.e. filming) can support stronger performances, so some flexibility is necessary. We advise revising the storyboard, with the support of the director, showing the preferred shots (or even identifying specific takes) to help plan the editing.

Rough Cut

A rough cut is an early version of a video or film edit that provides a basic visual and audio structure of the final product. It is created by assembling raw footage and selecting the best takes, arranging them in a logical order, and trimming out unwanted footage. A rough cut generally lacks refined transitions, effects, colour correction, and audio mixing, but it should give a clear sense of the story and pacing of the final product. It serves as a starting point for further editing and refining. Rough cuts can be shared with clients or collaborators for feedback before proceeding to the fine cut stage.

B-roll footage is secondary footage used to complement the primary footage, which is typically the main subject of the scene. The role of the B-roll in editing is to provide context and variety to the visuals while also helping to break up the monotony of the main footage. B-roll can be used to establish the location or environment, provide additional detail or information about a subject, or simply add visual interest to the scene. B-roll can set a scene's mood, tone or setting while also providing visual interest during transitional moments.

Using B-roll in editing can enhance the overall production value and engage the audience by providing a more immersive viewing experience.

Placeholder shots can be used as temporary stand-ins for shots that will later be replaced with the final VFX shots. Using placeholders for VFX shots in a rough cut is common practice. This approach can be helpful for several reasons:

It allows the editor to create a rough cut with the intended timing and pacing, even if the final VFX shots are not yet available. It helps the VFX team understand the editor's intentions and the timing of the shots, which can be helpful when planning and executing the VFX work. It can be used as a tool for communication between the editor and the VFX team, allowing them to discuss and refine the visual effects before finalising the shots.

When using placeholders for VFX shots, it is important to label them clearly and to provide detailed notes to the VFX team on what is required for the final shot. This can help ensure that the VFX shots are created to the desired specifications and can be easily replaced in the final edit.

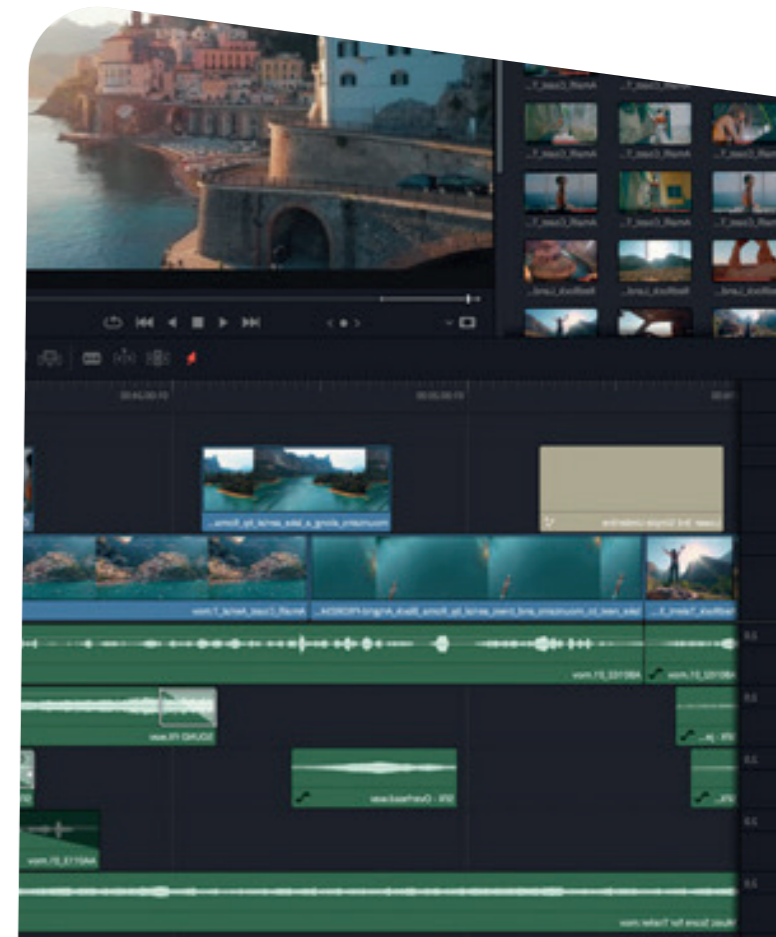
Editing

In the editing process, all footage and audio files are thoroughly reviewed, and notes are taken on which shots would work best for each part of the story. Afterwards, a rough cut is created by placing the shots in order and adding basic transitions. This is a solid foundation for the editor to refine and build upon. The editor can then add music, sound effects, and other layers to enhance the mood and tone of the piece. It's crucial to continuously review and make adjustments to ensure the story flows seamlessly.

Continuity

Continuity editing is a style of editing that seeks to establish a sense of spatial and temporal coherence between different shots in a film. This is achieved through various techniques, such as the use of establishing shots to orient the audience, matching on action to create a seamless transition between shots, and the use of eyeline matches to create a sense of visual continuity between different characters and their perspectives. Continuity editing is typically used in narrative films, where it is important to maintain a consistent sense of time and space throughout the story.

A typical sequence starts with an establishing shot. An establishing shot is commonly a wide-angle shot in a scene or sequence and is used to establish the location, time, and mood of the scene. The shot is typically taken from a distance, showing the surroundings, such as a cityscape or a landscape, in order to provide the audience with a context for the following action.

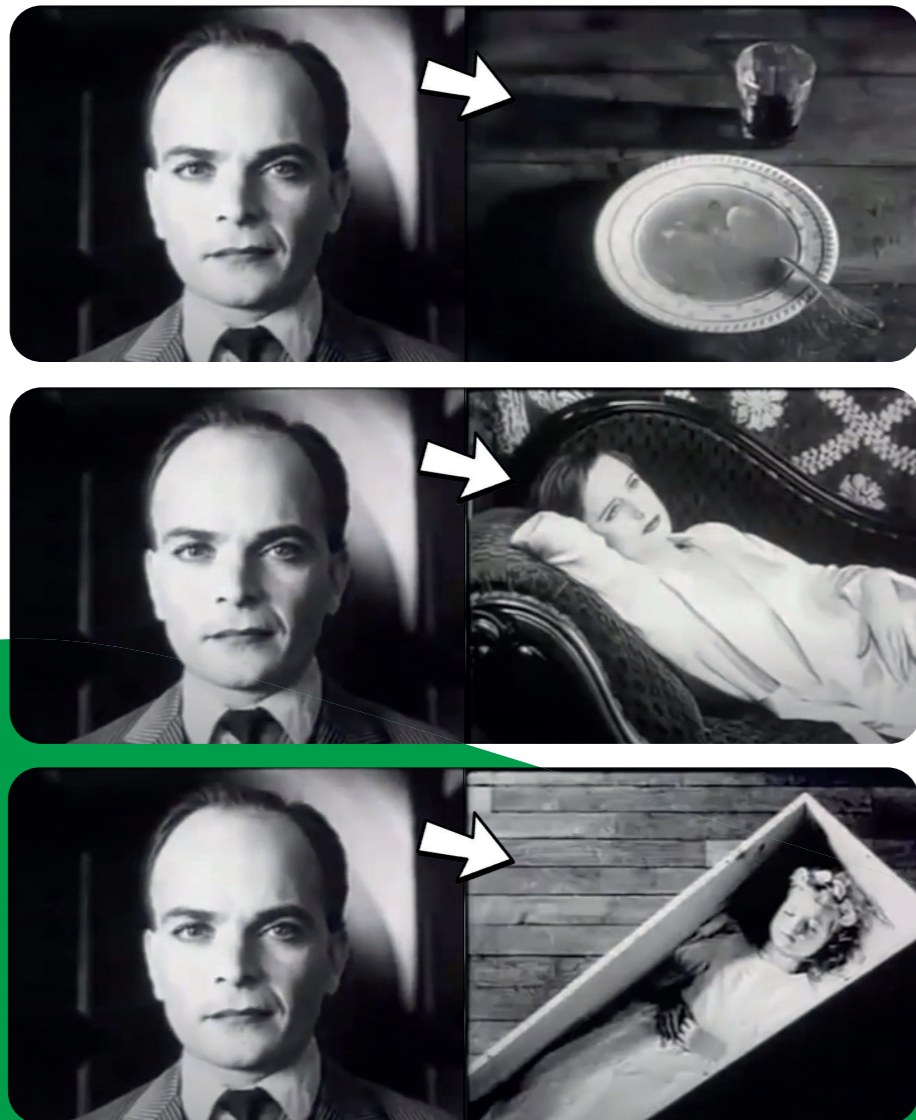


Kuleshov Effect

The Kuleshov effect is a film editing technique that Soviet filmmaker Lev Kuleshov developed in the early 20th century. The effect is created by editing together a series of shots to suggest a connection or relationship between them, even if no actual connection exists. This can create a specific emotional or intellectual response in the viewer based on the context and meaning that they assign to the shots.

Kuleshov demonstrated the power of film editing through an experiment. He showed the same shot of actor Ivan Mosjoukine's face, followed by various other shots: a plate of soup, a girl in a coffin, and a woman on a couch. Despite Mosjoukine's expression remaining unchanged, the audience interpreted it differently in each case: hunger when shown with the soup, grief when shown with the dead girl, and lust when shown with the reclining woman.

The Kuleshov effect is often used in film to create meaning using visual language and editing. It is a powerful tool for manipulating audience perception and emotion.



Continuous Editing Techniques

We can create a seamless and logical flow of time and space in a film by maintaining continuity in the visual and audio elements. It may involve using a series of editing rules, such as the 180-degree rule, shot-reverse-shot technique, match-on-action, and eyeline match to ensure that the audience can understand the relationships between the characters and the space they occupy.

This technique is commonly used in mainstream narrative films and television shows because it helps to maintain the coherence and clarity of the story being told.

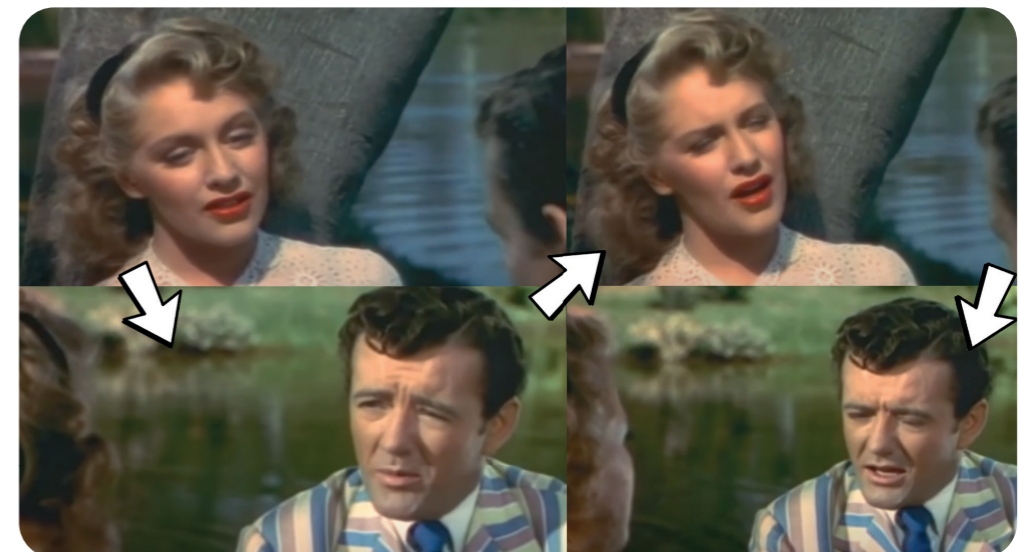
180-degree rule: The 180-degree rule is a guideline in filmmaking that governs how shot composition and camera angles are arranged to maintain spatial continuity. The rule states that an imaginary line called the "axis of action" should be established between two characters or objects in a scene, and the camera should remain on one side of this line to preserve a consistent spatial relationship between them. Crossing the line can cause disorienting shifts in perspective that can confuse the viewer. Very rarely, some directors deliberately "cross the line" to exploit this sense of uneasiness and disorientation, but this is always done with great care and intentionality.

Shot-reverse-shot technique: The shot-reverse-shot technique is a common film-making practice used to show a conversation or interaction between two or more characters. The camera is positioned on one character during a shot and then switches to another character during a subsequent shot, with the dialogue and action being edited together in a way that creates a seamless and fluid conversation. This technique is used to establish the spatial and emotional relationship between the characters and to highlight the reactions and expressions of each.



[The Insider - Michael Mann](#)

Axis of Action - 180° rule



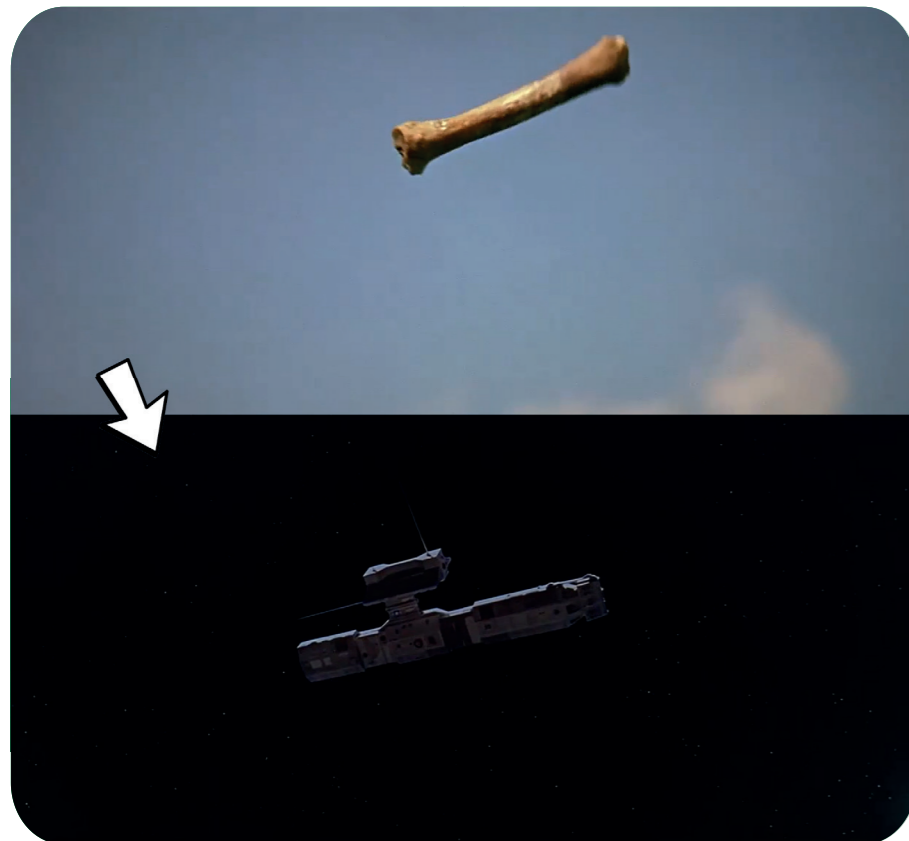
Till The Clouds Roll By (1946)

Match-on-action: Match-on-action is an editing technique that involves cutting between two shots of the same action or movement to create a seamless transition. The technique is often used to maintain the continuity of an action or movement across different camera angles or perspectives and can also create a sense of fluidity and momentum in the editing. For example, a shot of a person reaching for a door handle might be followed by a shot of the door opening, with the action of reaching and opening the door seamlessly blending together in the editing.

Discontinuity


Discontinuity editing is a style of film editing that deliberately breaks the rules of continuity to create a jarring, disjointed effect. Unlike continuity editing, which is designed to create a seamless and realistic flow between shots, discontinuity editing uses techniques such as jump cuts, time lapses, and non-linear narrative structures to disrupt the viewer's sense of time and space.

Jump cuts are perhaps the most common form of discontinuity editing, in which the same shot is repeated from slightly different angles or with minor changes in camera position. This creates a visual jump that can be disorienting for the viewer, but can also be used to create a sense of tension or urgency.



Match Cut: This cut creates a connection between two shots by matching their visual or audio elements, such as movement, shape, colour, sound, or theme. It is used to create a seamless transition between two shots and establish a relationship between them.

Cross Cut: This cut shows two or more separate actions happening simultaneously in different locations. It is used to create tension, suspense, or parallelism between different storylines.

 **Match Cut**
2001 A Space
Odyssey (1968)

Discontinuity editing can also involve non-linear narrative structures, such as flashbacks, dream sequences, and other unconventional storytelling techniques. By jumping back and forth in time or presenting events out of sequence, filmmakers can create a sense of disorientation or confusion that is not possible with traditional linear storytelling.

Overall, discontinuity editing is often used to convey a sense of emotional intensity or to create a particular mood or atmosphere in a film. It can be a powerful tool for filmmakers to experiment with and push the boundaries of traditional storytelling conventions.

Rhythm

The rhythm plays an essential role in film editing and refers to how cuts are arranged and timed to create a particular pace or tempo. By varying the rhythm of cuts, an editor can manipulate the pace of a scene and create tension or relaxation, depending on the desired effect.

The rhythm can be affected by several factors, including the duration of shots, the pace of camera movements, and the timing and placement of cuts. A fast rhythm may be achieved by using quick cuts with shorter durations and a higher frequency of camera movements, while a slower rhythm may be achieved by using longer shots and fewer camera movements with more extended durations.

The rhythm can also be influenced using sound, such as music or sound effects, which can create a sense of urgency, excitement, or relaxation. Visual effects, such as slow-motion or freeze frames, can also contribute to the rhythm of a scene.

Overall, the rhythm is an important tool for the editor to shape the emotional and dramatic impact of a film and engage the audience's attention throughout the story.



Editing

Other Versatile Cuts

Cut In: A “cut in” is an editing technique in which a shot is inserted into a sequence to show a closer view of an object or person in the scene. It is typically used to draw attention to a specific detail or to provide a more detailed view of a subject. A “cut in” is often used in combination with other editing techniques, such as a cutaway or a reaction shot, to create a more dynamic and engaging sequence. The timing and placement of a “cut in” are important to ensure that it enhances the narrative flow and visual impact of the scene.

Cutaways: A “cutaway” is an editing technique in which the camera cuts from the main action to a shot of something else, then back to the main action. The purpose of a cutaway is usually to provide additional context or to heighten the tension of a scene. For example, in a conversation between two characters, a cutaway to an object in the room or a reaction shot of a third character can help build tension or provide visual interest. Cutaways are often used to smooth over continuity errors, such as an actor flubbing a line, by providing a brief interruption in the action.



Goodfellas, Cut in... relevant to the action by showing a money delivery.



Goodfellas, Cut away... not relevant to the action, secondary activity.



[Introduction to Film: Lesson 5.4 - Cuts and Transitions](#)

Introduction to Film: Lecture Videos

L-Cut & J-Cut

J and L cuts are editing techniques used in film and video production to blend the audio and video between two scenes. A J-cut is when the audio from the next scene begins before the visuals of the current scene end. This creates a smoother transition between scenes, allowing the audience to hear what is coming up next before seeing it. J-cuts are commonly used in dialogue-heavy scenes, where the audio from one character’s speech may overlap with a shot of the other character reacting to what they’re saying. An L-cut is the opposite of a J-cut. It’s when the audio from the current scene carries over into the next scene while the visuals of the current scene end. L-cuts are commonly used in scenes with there is background music or ambient sound that continues into the next scene.

Invisible Cut

An invisible cut, also known as a seamless cut, is a type of cut that is designed to be as unnoticeable as possible to the viewer. It is a cut that occurs at a point where there is a visual or audio match between the shots on either side of the cut. This match can be based on a variety of elements, such as colour, motion, subject matter, or sound. The purpose of an invisible cut is to create a smooth and fluid transition between two shots without jarring the viewer out of the story or disrupting the flow of the scene.

Invisible cuts can be achieved through careful planning and editing and may involve using specialised techniques such as match framing or split editing. They can be a powerful tool for enhancing a film or video’s storytelling and emotional impact and are a prominent element of the language of cinema.

Transitions

Dissolve: This cut involves one shot gradually fading out while the next shot gradually fades in. It creates a smooth transition between two shots and conveys a passage of time or a dreamlike effect.

Fade: This cut involves one shot gradually becoming darker or lighter until it fades to black or white, followed by the next shot becoming progressively brighter or darker from black or white. It is used to show the beginning or end of a scene or time passing.

Iris In/Iris Out: This cut involves one shot gradually shrinking to a small circle or oval in the centre of the screen (Iris In) or gradually expanding from a small circle or oval to fill the screen (Iris Out). It is used to indicate a flashback, a dream sequence, or a change in perspective.



Transition sequence, dissolve and then iris out, on Till The Clouds Roll By (1946).

Chapter 02

Colour Grading

Colour grading is an essential part of the post-production process, and it can significantly impact a project's final look and feel. Simply put, colour grading is the process of adjusting the colours in the footage to achieve a desired look or mood. This can include adjusting the overall colour balance, exposure, contrast, saturation, and more.

Colour grading has a rich history that dates back to the early days of cinema. In the early 1900s, hand-colouring techniques were used to add colour to black and white films. Later, colour film stocks and colour grading techniques were developed, allowing filmmakers to achieve more nuanced and complex colour palettes.

Today, colour grading is an essential part of the filmmaking process, and it is used in everything from feature films and television shows to commercials and music videos. With the right colour grading tools and techniques, you can enhance the emotional impact of your footage, create a consistent look and feel across your project, and bring your creative vision to life.

In the following sections, we'll explore the fundamentals of colour grading, including the basics of colour spaces, the colour grading workflow, primary and secondary colour correction, creative colour grading techniques, and more.



Understanding Colour Spaces

Colour spaces are an essential concept to understand when it comes to colour grading. A colour space is a specific way of representing colour using numerical values. Different colour spaces have different colour primaries, colour gamuts, and gamma curves, which affect how colours are represented and displayed.

There are many different colour spaces used in film and video production, but some of the most common ones include:

- **Rec. 709:** This is the colour space used for HD video, and it has a relatively narrow colour gamut compared to some other colour spaces.
- **DCI-P3:** This is a colour space used for digital cinema projection, and it has a wider colour gamut than Rec. 709.
- **Rec. 2020:** This is a newer colour space that is designed for ultra-high-definition (UHD) video, and it has an even wider colour gamut than DCI-P3.

In addition to these commonly used colour spaces, many other colour spaces are used in different parts of the production process, such as log-encoded colour spaces for capturing high-dynamic-range (HDR) footage.

Understanding colour spaces is important for colour grading because it affects how colours are displayed on different devices. For example, if you grade your footage using the Rec. 2020 colour space but your final output is in Rec. 709, the colours may appear different than you intended.



The Colour Grading Workflow

The colour grading workflow is a systematic approach that involves several stages, each with its own set of goals and techniques. The workflow typically includes the following stages:

- **Preparation:** Before starting the process of colour grading, the footage must be adequately prepared. This can include transcoding to a format compatible with the colour grading software, syncing audio and video and organising the footage files.
- **Primary Colour Correction:** The first stage of colour grading is primary colour correction, which involves adjusting the overall colour balance, exposure, contrast, and saturation of your footage. This is usually done using colour wheels, which allow for independently adjusting the shadows, mid-tones, and highlights.
- **Secondary Colour Correction:** The next stage is secondary colour correction, which involves making targeted adjustments to specific parts of the image. This can include things like adjusting skin tones, removing colour casts, or boosting the saturation of a specific colour. This is usually done using tools like masks, which allow you to isolate specific parts of the image.
- **Creative Colour Grading:** The final stage of the colour grading workflow is creative colour grading, which involves using creative looks to achieve a specific mood or style. An example of creative colour grading is desaturating the image to create a gritty, documentary-style look or using a teal and orange colour grade to create a cinematic look.

It's crucial to work in a non-destructive way throughout the colour grading workflow, making adjustments that can be easily undone or modified later on. This approach permits experimenting with different looks and making changes based on client feedback without starting from scratch.



“Colour grading is the secret weapon of storytelling.”

Chris Do

Primary Colour Correction

The first stage of the colour grading workflow is primary colour correction, which involves adjusting the overall colour balance, exposure, contrast, and saturation of your footage. This stage is critical because it sets the foundation for the rest of the colour grading work.

The primary colour correction stage is usually done using colour wheels, allowing the shadows, mid-tones, and highlights to be adjusted independently. Three main colour wheels are used in primary colour correction: the lift, gamma, and gain wheels.

- **Lift Wheel:** The lift wheel adjusts the shadows in the image. Moving the lift wheel up adds more brightness to the shadows while moving it down adds more darkness.
- **Gamma Wheel:** The gamma wheel adjusts the midtones in the image. Moving the gamma wheel up adds more brightness to the midtones, while moving it down adds more darkness.
- **Gain Wheel:** The gain wheel adjusts the highlights in the image. Moving the gain wheel up adds more brightness to the highlights, while moving it down adds more darkness.

In addition to the colour wheels, there are other tools you can use for primary colour correction, such as exposure and contrast controls, saturation controls, and white balance controls.

It's noteworthy to remember that primary colour correction should be used to correct any colour imbalances or exposure issues in the footage rather than to create a creative look. Moving to the next stage of the colour grading workflow is preferable only once a balanced and natural-looking image has been achieved.



Secondary Colour Correction

The next stage of the colour grading workflow is secondary colour correction, which involves making targeted adjustments to specific parts of the image. This stage is where fine-tuning the colour grading can make the footage look its best.

Several tools can be used for secondary colour correction, including:

- **Masks:** Masks allow you to isolate specific parts of the image and apply colour corrections to those areas only. For example, you might want to adjust the skin tones in a person's face without affecting the rest of the image.
- **Power Windows:** Power Windows are a more advanced version of masks that allow you to create complex shapes for your colour corrections. This can be useful for correcting difficult areas, such as a brightly lit sky or a dark shadow.
- **Hue, Saturation, and Luminance (HSL) controls:** HSL controls allow you to adjust the hue, saturation, and luminance of specific colours in your image. This can be useful for things like adjusting the colour of someone's shirt or making the green foliage in a landscape shot look more vibrant.
- **Curves:** Curves allow you to adjust the brightness and contrast of specific parts of the image. This can be useful for things like brightening up the shadows in a dark scene or adding more contrast to an overexposed shot.

When using these tools for secondary colour correction, it's important to be subtle and make small adjustments. You don't want to overcorrect and end up with an unnatural-looking image. It's also important to work in a non-destructive way, so you can easily undo any changes if needed.



In Different Genres

Colour grading plays a vital role in establishing the tone and mood of a video project, and different genres require different approaches to achieve their desired look and feel. Here are some considerations to keep in mind when colour grading for different genres:



Narrative Film

Narrative film is perhaps the most well-known genre in which colour grading is used to create a specific look and feel. In this genre, colour grading can be used to establish the time of day, the mood of the scene, and even the emotions of the characters. For example, a warm colour palette might be used to create a cosy, comfortable feel for a romantic scene, while a desaturated, cool palette might be used to convey a sense of sadness or isolation.



Documentary

Documentaries often aim for a more natural look and feel, with colour grading used primarily for consistency and to enhance the footage rather than to create a specific mood. In this genre, colour grading might be used to ensure that footage shot in different locations or at different times looks consistent and flows seamlessly.



Music Videos

Music videos often feature highly stylised colour grading, with bold, saturated colours used to create a striking and memorable look. In this genre, colour grading might be used to complement the lyrics or themes of the song, or to create a specific atmosphere or vibe.



Commercials

Commercials often aim for a highly polished and professional look, with colour grading used to make products and brands stand out. In this genre, colour grading might be used to emphasise certain colours or create a specific contrast between the product and the background.



Animation

Animation allows for complete creative control over the colour palette, and colour grading is used to establish the look and feel of the entire project. In this genre, colour grading might be used to create a specific atmosphere, such as a fantastical world with bold and bright colours, or a sombre and melancholic environment with a muted colour palette.

Ultimately, the approach to colour grading will depend on the specific needs of the project and the genre. By understanding the nuances of different genres, you can create colour grades that enhance the storytelling and elevate the visual impact of the project.



Tools

Colour grading involves adjusting various aspects of an image, such as exposure, contrast, saturation, and colour balance. There are a variety of tools available to colour grade footage, ranging from basic tools found in most video editing software to specialised software designed specifically for colour grading.

1. Primary Colour Correction Tools

Primary colour correction tools allow you to adjust the overall colour balance and exposure of an image. These tools include:

- **Lift, Gamma, Gain (LGG):** Allows you to adjust the shadows (Lift), midtones (Gamma), and highlights (Gain) of an image.
- **Exposure:** Allows you to adjust the overall brightness of an image.
- **Colour Temperature:** Allows you to adjust the overall warmth or coolness of an image.
- **Saturation:** Allows you to adjust the intensity of the colours in an image.

2. Secondary Colour Correction Tools

Secondary colour correction tools allow you to make targeted adjustments to specific areas of an image. These tools include:

- **Hue, Saturation, and Lightness (HSL):** Allows you to adjust the hue, saturation, and brightness of individual colours.
- **Curves:** Allows you to adjust the brightness and contrast of specific areas of an image using a curve.
- **Colour Wheels:** Allows you to adjust the colour balance of an image by adjusting the shadows, midtones, and highlights of specific colour ranges.
- **Keying:** Allows you to select a specific colour range or area of an image and make targeted adjustments to that area.

3. Specialised Colour Grading Software

In addition to the basic colour correction tools found in most video editing software, there are also specialized colour grading software programs available. These programs offer more advanced tools and workflows designed specifically for colour grading. Some examples include:

- **DaVinci Resolve:** A professional-grade colour grading software with advanced tools for primary and secondary colour correction, as well as specialised features such as colour matching and tracking.
- **Adobe SpeedGrade:** A colour grading software that integrates with other Adobe Creative Cloud programs, offering advanced tools for primary and secondary colour correction and colour grading workflows.
- **FilmConvert:** A specialized plugin that allows you to apply film stock emulation and colour grading presets to your footage.

By understanding the various colour grading tools available, you can choose the right tools for your project and achieve the desired look and feel for your footage.



Virtual Productions

Colour grading for virtual productions presents some unique challenges and considerations. Here are some tips for achieving great colour grading results in virtual productions:

1. Start with a Good Base Image

When colour grading for virtual productions, it's important to start with a good base image. Ensure that the live action footage is properly exposed, and colour balanced, and that the virtual set or environment is lit to match the lighting in the live action footage. This will provide a solid foundation for your colour grading work.

2. Match the Lighting and Colour of the Virtual Set

One of the main challenges of colour grading for virtual productions is matching the lighting and colour of the virtual set or environment to the live action footage. Use reference images and footage to ensure that the virtual set matches the lighting and colour temperature of the live action footage. Make adjustments as necessary to achieve a consistent look across the entire image.

3. Use Scopes to Analyse the Image

When colour grading for virtual productions, it's important to use scopes to analyse the image and ensure that it is properly exposed, and colour balanced. Use waveform monitors and vectorscopes to analyse the colour and exposure of the image and make adjustments as necessary to achieve a consistent and balanced look.

4. Pay Attention to Reflections and Shadows

In virtual productions, reflections and shadows can present some unique challenges for colour grading. Ensure that reflections and shadows in the virtual set or environment match the lighting and colour temperature of the live action footage. Use masks and selective adjustments to adjust the colour and brightness of reflections and shadows as necessary.

5. Use 3D LUTs for Consistency

Using 3D LUTs (Look-Up Tables) can be a powerful tool for achieving consistency in colour grading for virtual productions. Create a custom 3D LUT for your project and apply it to each shot to ensure a consistent look and feel across the entire production.

6. Test Your Colour Grading in a Virtual Environment

When colour grading for virtual productions, it's important to test your colour grading in a virtual environment to ensure that it looks good in context. Use a virtual camera to preview your colour graded footage in the virtual environment and make adjustments as necessary to achieve a consistent and polished look.

Colour Grading Tips & Tricks

Colour grading is both an art and a science, and there are a variety of techniques and best practices that can help you achieve the desired look and feel for your footage.

Here are some tips and tricks to keep in mind when colour grading:

1. Use Reference Images

Reference images can be a great tool for establishing the desired look and feel for your project. Before you begin colour grading, collect reference images that capture the mood and tone you want to achieve. Use these images as a guide for your colour grading and refer back to them frequently to ensure that you are staying on track.

2. Use Scopes

Scopes are a powerful tool for analysing and adjusting the colour balance and exposure of your footage. Use scopes to ensure that your footage is properly exposed, and colour balanced and make adjustments as necessary to achieve a consistent look across your footage.

3. Work in Stages

Colour grading is a complex process that involves making adjustments to multiple aspects of an image. To avoid getting overwhelmed, it's often helpful to work in stages. Start by making broad adjustments to the overall colour balance and exposure of your footage, and then move on to more targeted adjustments such as adjusting the colour of specific objects or areas of the image.

4. Be Consistent

Consistency is key when it comes to colour grading. Ensure that your footage is consistent in terms of colour balance, exposure, and overall look and feel. This will help your footage feel cohesive and polished.

5. Experiment with Different Looks

Don't be afraid to experiment with different colour grading techniques and looks. Sometimes the most interesting and creative results come from trying new things and stepping outside of your comfort zone.

6. Consider the Audience

When colour grading, it's important to keep in mind the intended audience for your project. The colour grading for a commercial aimed at teenagers might look very different from the colour grading for a documentary aimed at an older demographic. Consider the demographics and preferences of your target audience when making colour grading decisions.

7. Don't Overdo It

While it can be tempting to go all out with colour grading, it's important to exercise restraint and not overdo it. Over-saturating colours or pushing the contrast too far can result in an image that looks unnatural and jarring. Remember that subtlety and restraint can often be more effective than bold and dramatic colour grading.



“Visual effects empower filmmakers to bring their wildest imaginations to life.”

- James Cameron

Chapter 03

Visual Effects, VFX

Visual effects, or VFX, have revolutionized the world of video editing, enabling filmmakers and editors to bring their creative visions to life in ways that were once impossible. From creating lifelike explosions and massive battles to seamlessly integrating computer-generated characters into live-action footage, VFX have become an essential tool for modern video editors. In this chapter, we will explore the fundamentals of VFX and how they can be used to enhance your video editing projects.

Matchmoving

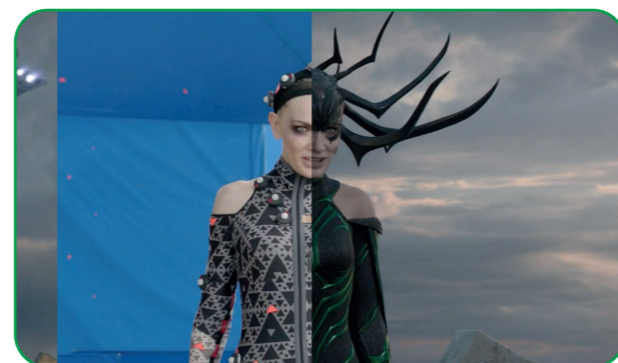
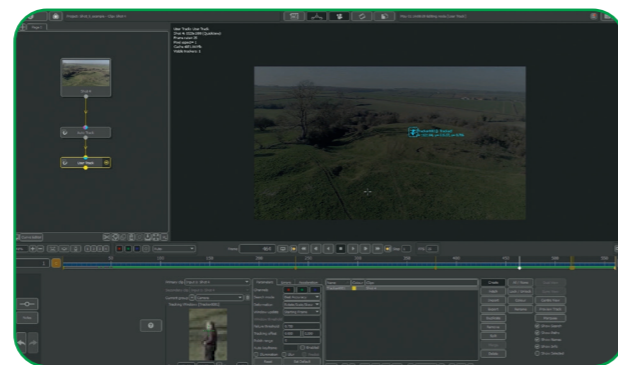
The process of integrating 3D elements into live-action footage is known as matchmoving or camera tracking. There are different techniques used within this discipline, each with a different goal in mind. There are several software options available for matchmoving, including PFTrack, 3DEqualizer, and others. Additionally, compositing software packages also have basic matchmoving functionality built in, such as After Effects and Fusion. Dedicated matchmoving software packages use advanced algorithms and techniques to track camera movement and object motion in the live-action footage, and generate a 3D scene that aims to match the footage as close as possible.

The general workflow for matchmoving is:

1. Shot preparation: The first step is to prepare the live-action footage for tracking. This process involves removing distortion, stabilising the footage, and editing the footage.

2. Tracking: The next step is to track the camera's movement, and to add tracking markers to the footage using the matchmoving software's toolset. If done correctly, the software generates a 3D scene and a camera that matches the movement and perspective of the original footage.

There are a few different techniques used in order to integrate 3D-elements into live-action footage. The goal is to accurately replicate the camera's movements and the motion of physical objects, so that the user can composite digital 3D objects and/or animations together with the live-action footage.



Subtopics Matchmoving

Camera tracking: Camera tracking, also known as motion tracking, is an important aspect of matchmoving. It involves analysing the camera used to shoot the live footage and creating an accurate virtual camera that can be used to integrate 3D elements seamlessly with the live footage. During the camera tracking process, software analyses the movement of the camera in each shot. This is done by identifying specific points or markers in the footage, which are then tracked over time to calculate the camera's movement and position in 3D space. The software then creates a virtual camera that matches the movement and position of the real camera in the shot.

Object tracking: Object tracking is used to track real-world objects within the footage. Object tracks are used to either replace or enhance an object that is already present in the footage.

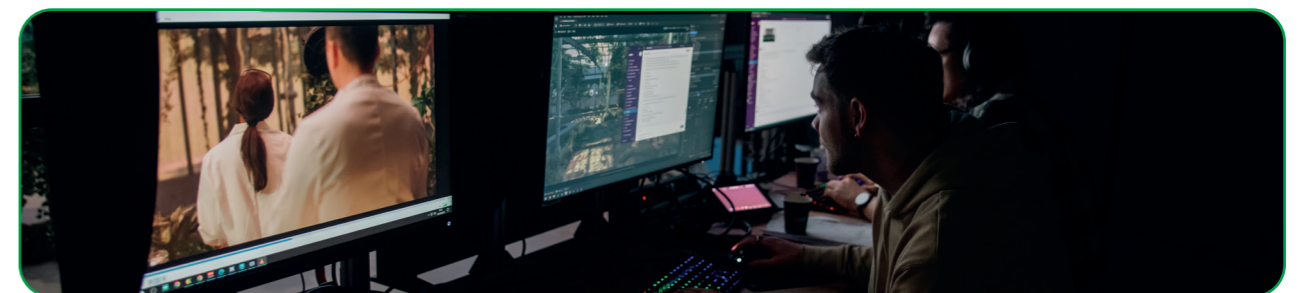
Roto animation: Roto animation, also known as rotoscope animation, is a technique used to match the precise movement of a subject's body parts, such as their head, hands, or even their entire body. To achieve this, often a (polygonal) representation of the actor's body is created, which is then animated to match their movements. This technique is used for several reasons, including the need for geometry to interact with other 3D elements in the scene for lighting and rendering purposes, and to create a matte that helps when adding different elements on top of the actor during compositing.

Automatic tracking vs. interactive tracking:

(Automatic tracking is when technology tracks something without human intervention. Interactive tracking involves real-time interaction and allows users to actively control the tracking process).

Automatic tracking Pros:

- **Faster tracking:**
Automatic tracking and auto-solve features can create a large number of tracking points at much faster speeds than human-driven tracking.
- **Reliable data:**
Filtering tools in the software can analyse the automatic solutions. These help to determine the most reliable points to use from a large number of tracking points.
- **High accuracy:**
Automatic tracking can be very accurate in favourable circumstances with stable and distinct features, e.g. in shots with less camera movement, reduced motion blur, reliable tracking markers.



Automatic tracking Cons:

- **Easily confused:**
Depending on the algorithm used, automatic tracking can easily be confused when tracking objects through the scene, particularly in shots involving fast camera motion and repetitive subject matter.
- **Motion blur:**
Automatic tracking is less effective in shots with a large amount of motion blur, because small details are harder for the software to track.
- **Hard to control:**
Given the vast amount of information an automatic solution requires, it becomes harder to control the result.

Interactive tracking Pros:

- **Accurate tracking:**
In contrast to an automatic solution, a manual process allows the user to follow individual features and place markers interactively throughout the entire shot at will, while also being less obstructed by imperfections in the footage.
- **Flexible:**
A manual workflow is less obstructed by imperfections in the footage such as motion blur, fast-moving camera motion, and occluded subjects, allowing the user to accurately track features throughout the entire shot.
- **More control:**
A manual approach allows the user to have more control over the tracking process due to the lower amount of information introduced. This means that the user can make more precise decisions and adjustments during the tracking process.

Interactive tracking Cons:

- **Time-consuming:**
Interactive tracking can be slower than automatic tracking because it is driven by a human user.
- **Prone to errors:**
The user may introduce small errors as they follow objects through the scene, leading to “drift” over time.



In summary, automatic tracking is faster and more reliable when tracking stable and distinct features, but is less effective in shots with motion blur or repetitive subject matter.

Interactive tracking is more accurate and flexible, but is slower and can introduce small errors. Professional-level motion tracking often combines both techniques to achieve the best results.

Animatic

The next step in the VFX pipeline is to create an animatic, which is also referred to as the layout stage. During this stage, the border between the live-action elements and the 3D-elements begins to blur. An animatic is a continuation of the storyboard stage and serves a similar purpose, which is to represent the final shot, demonstrate the timing and layout of the 3D elements, and bring everything together.

The animatic is usually created by using the tracked footage as a base, and then adding rough 3D and/or animated elements to the scene, to get an idea of how they look in the shot, and whether or not the tracked elements work well. Checking this can reduce production time that may otherwise be wasted on shots that go unused in the final cut.

The animatic is an important tool for visualising the final shot, and communicating the vision to the rest of the production team. It also helps in identifying any potential issues or challenges that may arise during the later stages of the VFX process, such as camera tracking errors, lighting mismatches, or difficulties with compositing.

Overall, creating an animatic for tracked footage is a crucial step in the VFX pipeline that helps ensure that the final shot looks realistic and seamless, and meets the vision of the director and the production team.

Assets

The asset creation stage is essential in the VFX pipeline. It involves creating 3D elements such as character models, props, background assets, mesh additions to live-action objects, and textures that resemble the live-action footage as closely as possible.

Industry standard software options for asset creation include Autodesk Maya, Blender, Zbrush, Substance Painter, Mari, and others.

Asset creation requires a blend of technical and creative expertise, and the 3D assets produced must be of the highest standard to ensure seamless integration with the live-action footage. Unlike most video game assets, film assets may only need to look good from one angle, but they still need some flexibility in case of changes. Understanding the final shots can optimise the asset creation process, for example an asset that will never be close to the camera may often be made to a lower quality than close-up assets.

Lighting

The lighting stage is an important step towards creating a realistic and believable link between your digital 3D elements and the live-action footage. It involves using various techniques to mimic the lighting from the live-action footage, so that the digital 3D elements appear lit in the same way, creating the illusion that they are sharing a physical space.

HDRI lighting is an important technique used in lighting. HDRI stands for High Dynamic Range Imaging. This technique involves capturing a series of photographs of the environment while shooting the live-action footage. With these photographs, the user can stitch together a 360-degree panorama of the environment.

The panorama can be used as a lighting source in the 3D software, allowing the digital 3D elements to be lit by the same lighting environment as the live-action footage. The user can then extrapolate any lighting sources from the footage, and supplement the HDRI by manually placing extra lights.

Another important aspect of lighting in VFX is matching the lighting in the 3D scene to the lighting in the live-action footage. This can be done using Macbeth charts and reflective spheres with different material values. A Macbeth chart is a colour chart used for colour calibration in photography and film. The spheres are used for material and lighting calibration reference.

By placing a Macbeth chart in the live-action footage and then matching the colours in the 3D software to the colours in the chart, the lighting in the digital scene can be adjusted to match the lighting in the live-action footage. It is crucial to match the lighting in the digital 3D scene to the lighting in the live-action footage to create a realistic and seamless composite. This involves paying attention to the direction of the lighting, the colour and intensity of the lighting, and the shadows and reflections in the scene. A mismatch in lighting can cause the 3D elements to appear disconnected from the live-action footage, undermining the believability of the VFX.



Rendering

Rendering is the step in the VFX pipeline where we gather all our assets, such as lighting, look development, animation, and more, and combine them into a unified rendering environment to make the high-quality renders/image sequences needed to construct the final image. This process is usually performed on a render farm, where the different render jobs are distributed across different dedicated servers. This is needed because, in contrast to real-time rendering, offline rendering takes a significant amount of time.

There are different software options available for rendering, such as Vray, Arnold, Karma, Blender Cycles, and Octane. The choice of a rendering package that is most appropriate for your needs depends on the particular 3D software package you are using. For example, Vray and Arnold are usually used in conjunction with Maya, Blender Cycles and/or Octane are used with Blender, and Karma is used with Houdini.

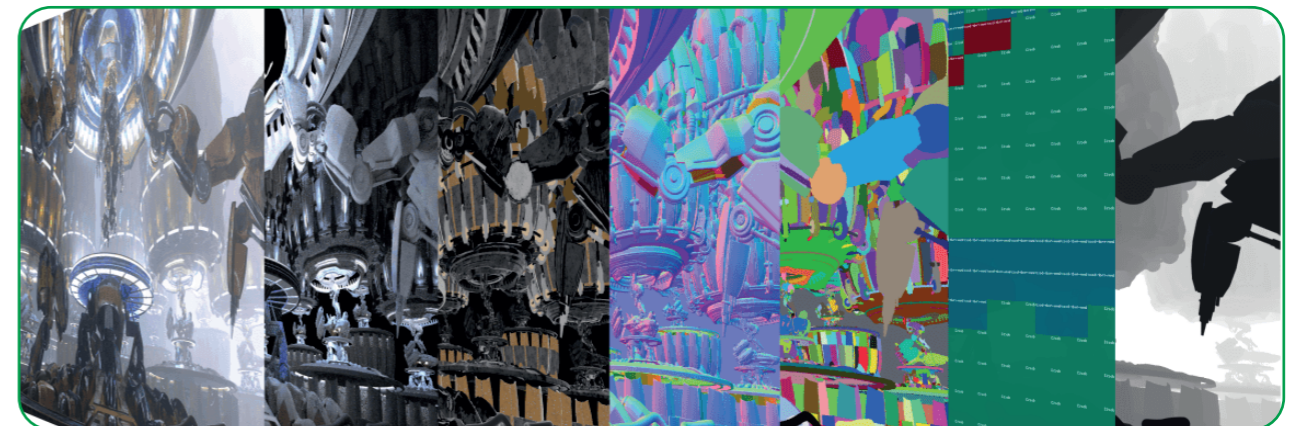
There are many ways to go about the render portion of the project, and it is important to know which aspects of your render will need to be edited during compositing. A 3D render comprises many different elements, such as albedo, specular, roughness, metallic, shadow passes, indirect illumination, ambient occlusion, normals, z-depth, and so on. These are commonly referred to as render passes, and/or cryptomattes.

Some of these render passes are individually authored through the use of materials and textures, and some are automatically calculated at render time, and are a way to store 3D-information.

Cryptomatte

Cryptomatte is an open-source plugin that outputs ID representations of a 3D scene, to create image masks for 3D objects. They are supported by most render engines and compositing software.

The program itself calculates an ID matte of a scene that can create, for example, image masks for single or multiple objects in the scene. The ID matte has a very distinctive look and itself is sometimes referred to as cryptomatte. These cryptomatte images are often very colourful, due to assigning each object or material a different random colour. The program creates mattes that support motion blur, transparency and depth of field using data that is already available at render time.



Compositing

Compositing is the step in the VFX pipeline, where all the different elements are assembled to create the final image. This process involves combining visual elements from different sources, such as live-action footage, rendered CGI footage, and other post-processing effects, to assemble the final shot.

Compositing is the stage in the VFX pipeline where all the different elements come together, created in various departments such as modelling, texturing, animation, and lighting, and, of course, the live-action footage. Compositing is the discipline of blending all these individual components together to assemble a believable final image.

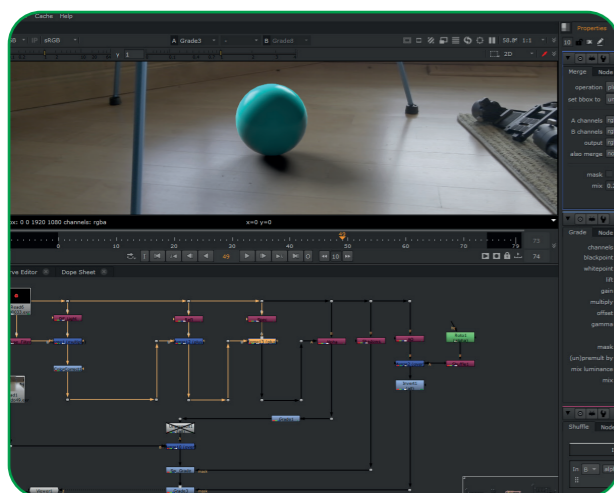
There are different software options available for compositing. The most popular ones include Nuke, After Effects, Fusion, and Flame. Nuke, with its node-based workflow, is the industry standard, and allows for complex and advanced compositing.

After Effects is also very popular, and is often used for simpler composites and motion graphics.

Fusion, which is part of the DaVinci suite, is a more affordable alternative to Nuke, and just like Nuke it has a node-based workflow.

And finally you have Flame, which is an all-in-one VFX solution, with compositing being one of its main features.

The general workflow for compositing involves importing all your different elements, for example your render passes, live-action footage sequences, and so on. The next step is to arrange them all together in a layering system, which allows us to blend them together with the various tools in your compositing software. As such, the aim of the compositing artist is to ensure all these separate elements blend together seamlessly, while keeping realism and believability intact.



Chapter 04 Soundscape Design

A film soundscape, also known as a film sound design or simply film sound, refers to the collective use of sound in a film to create a specific audio environment or atmosphere that complements the visuals and narrative of the story. It involves the creation, selection, and integration of various sound elements, such as dialogue, music, sound effects, and ambient sound, to enhance the emotional impact of a scene and convey a sense of space, time, and mood.

A film soundscape is an integral part of the post-production process and is usually created by a team of sound designers, composers, editors, and mixers and mastering engineers. They work closely with the director and the editor to ensure that the sound complements and enhances the visuals, and that it is in sync with the pacing and rhythm of the film. The sound elements are mixed together to create a cohesive and immersive audio experience for the audience.

Sound Layers

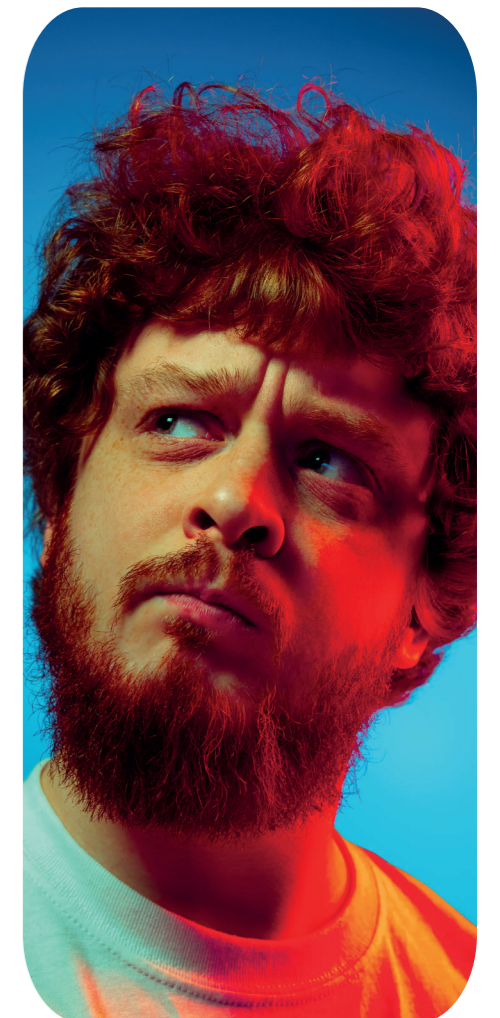
Soundscapes are a group of sound layers. They can include voice, sound effects, ambient noise, and music. Each layer is typically recorded, edited, and mixed separately to create a cohesive sound mix for the final film. By layering these different sounds together, filmmakers can create a rich and immersive sound experience for the audience.

Voice: This is the spoken words of the characters or narrator, usually recorded on set or in a studio during post-production.

Sound effects (SFX): These are sounds that are added to enhance the visuals and provide a sense of realism. Examples include footsteps, gunshots, and explosions.

Ambience: This layer provides the background noise of the setting, such as traffic, birds, or people talking.

Music: This is the score or soundtrack of the film, which can be composed specifically for the film or selected from existing music.



Sound Mixing

To create a cohesive and immersive soundscape that enhances the storytelling and emotional impact of the film, sound layers need to be mixed. The sound layers are imported into a digital audio workstation (DAW), where they can be arranged, manipulated, and mixed together. The sound mixer will adjust the levels, panning, EQ, and other effects of each individual sound element to create a balanced and effective mix.

The mix is typically created in several stages, starting with a rough mix, which provides an initial balance of the various sound elements. This is followed by a series of refinements and adjustments, often involving feedback from the director, until the final mix is complete.

Finally, the finished mix is exported from the DAW and integrated back into the film's final edit. The result is a fully realized sound design that enhances the visual storytelling and creates a more immersive and engaging viewing experience for the audience.

Balancing

In a balanced sound mix, all of the sound elements, including dialogue, music, and sound effects, are mixed together at appropriate levels so that they complement each other and create a cohesive listening experience for the audience. The different sound elements are carefully balanced and mixed to ensure that no single element overpowers the others.

In contrast, an unbalanced sound mix can result in certain elements being too loud or too soft in relation to the other elements. This can be distracting for the audience and detract from their overall experience of the film, but, it can also be used for artistic emphasis by intentionally making certain elements of the audio louder or quieter than others to create a specific emotional or narrative effect. For example, in a horror movie, the sound of a character's breathing or footsteps may be emphasised and made louder to create a sense of tension and suspense. In an action movie, the sound of explosions and gunshots may be emphasised to make the scene more intense.

Unbalanced sound can also be used to create a sense of disorientation or confusion, such as in a dream sequence or a scene depicting a character's mental state. By manipulating the balance of different audio elements, the viewer can be made to feel disoriented or emotionally overwhelmed, adding to the impact of the scene.

In contrast, a balanced sound mix aims to present all audio elements at an equal level, allowing the viewer to focus on the dialogue and other important sounds without being distracted by overly loud or quiet elements. A balanced mix is typically used in more traditional narrative films or documentaries where the goal is to present the story in a clear and straightforward manner.

Concepts

On-screen	Off-screen	Diegetic	Non-diegetic
On-screen sound refers to any sound that is source is physically present within the scene being shown on the screen. For example, if a character is speaking and their voice can be heard, that would be considered on-screen sound.	Off-screen sound, on the other hand, refers to any sound that is source is not physically present within the scene being shown on the screen, but is still part of the overall soundscape of the film. This can include things like sound effects, or dialogue that is heard but not seen.	Diegetic sound refers to sound that originates from a source within the world of the film or scene. For example, a character talking, footsteps, or a car honking are all examples of diegetic sound. These sounds are heard by the characters on-screen and are part of the scene's reality.	Non-diegetic sound, on the other hand, refers to sound that is added to the film for dramatic or storytelling effect and is not part of the scene's reality. Examples of non-diegetic sound include background music, voiceovers, or sound effects that are added for emotional impact, tension, or atmosphere.

Designing a Soundscape

Typically, before the design soundscape for a scene is its advised to watch it multiple times, paying close attention to the visuals and mood of the scene, and we advise the following process.

- **Diegetic sounds:** Identify all key diegetic sounds that are already present in the scene, such as dialogue, sound effects, and background noise, consider on and off-screen sounds.
- **Add additional sounds:** Decide which additional sounds you want to include in the soundscape. This could be ambient noise, music, or sound effects that are not present in the original footage.
- **Spatial location:** Use panning and spatialization to create a sense of depth and directionality in the soundscape or use the sense of perspective. For example, you can pan a sound from left to right to create the illusion of movement, or the volume of a sound layer decreasing when object is moving away from the camera.
- **Non-diegetic sounds:** Consider adding the emotional impact by adding sound effects and/or music. For example, you might use eerie sounds to create a sense of tension and suspense, or calming sounds to create a sense of relaxation and tranquillity.
- **Experiment with the levels:** Adjust the levels of the sounds to create a balanced soundscape. You want to make sure that the sounds are clear and audible, but not overwhelming or distracting.
- **Test and refine:** Finally, test the soundscape in context with the visuals and refine it as necessary until you achieve the desired effect.

Voice

Speech is a fundamental aspect of human communication, allowing individuals to convey their thoughts, feelings, and ideas to others. It is a complex process that involves the coordinated movements of various muscles, including those involved in respiration, phonation (i.e., the production of sound), and articulation (i.e., the shaping of sound into meaningful speech sounds).

In addition to conveying information, speech can also convey social and emotional meaning, such as tone of voice, emphasis, and other nonverbal cues. This allows individuals to express their emotions, establish relationships, and navigate complex social interactions.

Monologues and Dialogue

Monologues and dialogues play an important role in sound design by conveying information, emotions, and characterization to the audience.

In the case of monologues, a character speaks aloud, either to themselves or to the audience, conveying their thoughts, feelings, or inner conflict. The sound design for monologues can help to create a sense of intimacy, closeness, or even claustrophobia by using close-up or intimate microphone techniques. The use of reverb or other effects can also help to reinforce the character's emotional state or the environment they are in.

Dialogues, on the other hand, involve a conversation or exchange between two or more characters. Sound design for dialogues is crucial for ensuring that the audience can hear and understand what is being said. Proper use of microphone placement, EQ, and volume levels can help to create a sense of space and perspective, and convey important details about the characters and their relationships with one another.

In both cases, sound design can also be used to enhance the emotional impact of the performance. The use of music, sound effects, and other audio elements can help to underscore or counterpoint the emotional content of the dialogue or monologue, creating a richer and more immersive experience for the audience.

Narration

Narration is a technique used to convey information to the audience through a spoken commentary. It can be used to provide exposition, clarify complex ideas, and guide the audience's emotional responses.

Narration is often used in documentaries to provide context or background information, or to offer insights into the story being told. It can also be used in feature films to provide voice-over commentary, or to convey the inner thoughts of a character.

Narration can be delivered by an on-screen character, or it can be provided by a voice-over artist. The tone and style of the narration can vary depending on the film's genre and the intended audience. Some films use narration sparingly, while others rely heavily on it to tell the story.

Narration can create interesting artistic and creative style, it is a non-diegetic sound (except when there is a 4th wall disruption), and can be an effective storytelling tool, but it can also be overused or poorly executed. A good narrator should be clear, engaging, and able to convey the intended tone of the film. The narration should also complement the other elements of the film, including the visuals, sound effects, and music. When used effectively, narration can enhance the overall impact of a film and provide the audience with a deeper understanding of the story being told.

ADR – Automatic Dialog Replacement

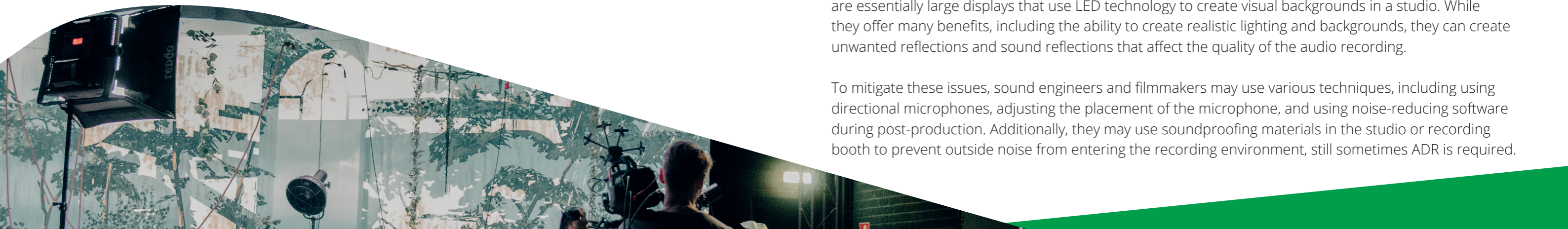
ADR is a technique used in post-production to re-record dialogue for a film or television show. This is done when the original dialogue recorded on set is unusable due to poor audio quality, background noise, or other technical issues.

During ADR, the actor watches the footage and records their lines in a sound booth, syncing their performance to match the lip movements of the on-screen character. This new recording is then edited into the film to replace the original dialogue. ADR is often used to fix minor errors in dialogue, but can also be used for entire scenes or performances if necessary.

ADR can also be used for creative purposes, such as adding dialogue or changing the meaning of a line after filming has wrapped. In some cases, entire performances may be recorded in ADR, either to match the lip movements of a foreign-language version of the film or to achieve a specific vocal effect.

LED walls and computer studio noise can affect the quality of voice recording during filming. LED walls are essentially large displays that use LED technology to create visual backgrounds in a studio. While they offer many benefits, including the ability to create realistic lighting and backgrounds, they can create unwanted reflections and sound reflections that affect the quality of the audio recording.

To mitigate these issues, sound engineers and filmmakers may use various techniques, including using directional microphones, adjusting the placement of the microphone, and using noise-reducing software during post-production. Additionally, they may use soundproofing materials in the studio or recording booth to prevent outside noise from entering the recording environment, still sometimes ADR is required.



Sound Effects

Sound effects play a crucial role in film soundscape as they help to create a realistic and immersive auditory environment for the audience. They can be used to enhance the natural sounds that occur within a scene, such as footsteps, or they can be used to create entirely new sounds that help to convey a certain emotion or atmosphere. Overall, sound effects are an important tool in film sound design, helping to bring the visuals to life and create a more immersive and engaging cinematic experience for the audience.

Examples of sound effects that may be used in film sound design include nature or animal noises, ambience, but also explosions, gunshots, car crashes, and weather sounds like thunder or rain. Sound effects can also be used to create otherworldly or supernatural sounds, like the roar of a dragon or the hum of a UFO.

Sound as Information

Sound effects is often a source of information to the spectator, providing information which is often missing in the footage to build the bridge between shots, and can also be used as a way to create tension and anticipation for the viewer. They enhance the visual storytelling by adding a layer of sonic information that supports the visuals and immerses the viewer into the film's world. For example, the sound of a door opening and closing can provide information about a character's entrance or exit from a room, or the sound of footsteps can indicate movement or create a sense of suspense.

Sound effects can also create anticipation by setting up expectations for what is going to happen on screen. For example, a low rumbling sound can foreshadow an impending disaster, or the sound of a ticking clock can create tension and build suspense. Sound effects can also add emotional impact to a scene, such as the sound of a gunshot or explosion, which can create a feeling of shock or fear.

Foley

Foley is the process of creating and recording sound effects in a studio that are synchronized with the actions on screen. Foley artists use a variety of props and surfaces to mimic the sounds of footsteps, clothes rustling, objects being handled, and other sounds that are difficult to capture on set.

The term "Foley" comes from its creator, Jack Foley, who developed the technique in the early days of sound cinema. Foley artists perform their work in a special sound studio, where they watch the film and create the sounds live while recording them with specialized microphones. The resulting sounds are then edited and mixed with other elements of the soundtrack to create a final mix.

Foley is an important part of film sound design as it helps to create a more immersive and realistic sound environment for the audience. The sounds created through Foley can add a level of detail and texture to a film that would be difficult or impossible to achieve through traditional sound recording techniques. Foley artists are skilled in creating sound effects that not only match the actions on screen but also help to enhance the emotional impact of a scene.

Music

Music can be a powerful tool for enhancing the emotional impact and storytelling of a film and should be considered an important part of the sound scaping process. Music can be used in different ways in sound scaping. It can be used as a standalone element, or it can be integrated with other sound effects and dialogue. It can also be used to transition between different scenes or to signal changes in the narrative.

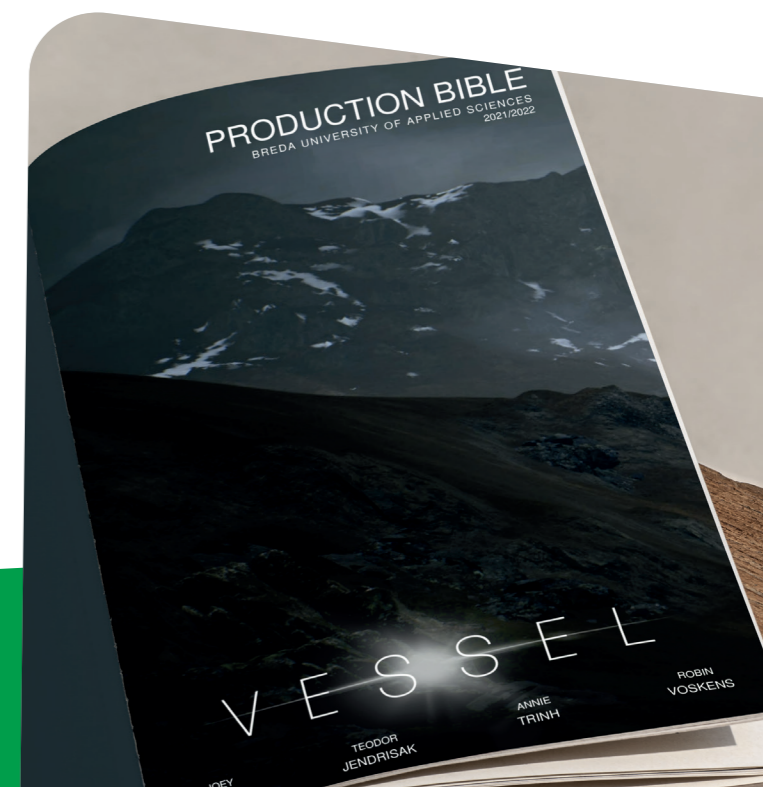
In addition, the choice of music can also help to establish the time period, location, or cultural context of a scene. For example, using traditional music from a specific region can help to establish the location or culture, while using music from a particular time period can help to create a sense of history or nostalgia.

Major and Minor Scales

In music theory, the concept of major and minor scales refers to the arrangement of notes within a particular key. Major scales have a bright and upbeat sound, while minor scales have a more somber and melancholy feel. When selecting music for a film, the use of major and minor scales can be a powerful tool in shaping the emotional tone of a scene.

For example, a scene depicting a joyous event such as a wedding or graduation might be accompanied by music in a major key, conveying a sense of celebration and happiness. Conversely, a scene depicting a tragic event such as a funeral or a serious illness might be accompanied by music in a minor key, conveying a sense of sadness and mourning.

Of course, the use of major and minor scales is just one factor to consider when selecting music for a film. Other factors, such as tempo, instrumentation, and genre, can also play a role in shaping the emotional tone of a scene. Ultimately, the goal of sound scaping with music is to enhance the emotional impact of a film, and the selection of music should be made with this in mind.



Instrument Types

Piano

The piano is often associated with elegance, sophistication, and class. It can evoke a wide range of emotions, from sadness and melancholy to joy and excitement.



Violin

The violin is often associated with romance, passion, and intensity. It is commonly used in classical music, but can also be heard in other genres like country, folk, and rock.



Guitar

The guitar is one of the most versatile instruments and can be used in almost any genre of music. It is often associated with youthfulness, rebellion, and freedom.



Brass

Brass instruments are often associated with power, celebration, and victory, but are also often associated with sensuality, romance, and bluesy melodies. It is commonly used in jazz and classical music.



Flute

The flute is often associated with beauty, tranquillity, and nature. It is commonly used in classical music, but can also be heard in folk and world music.

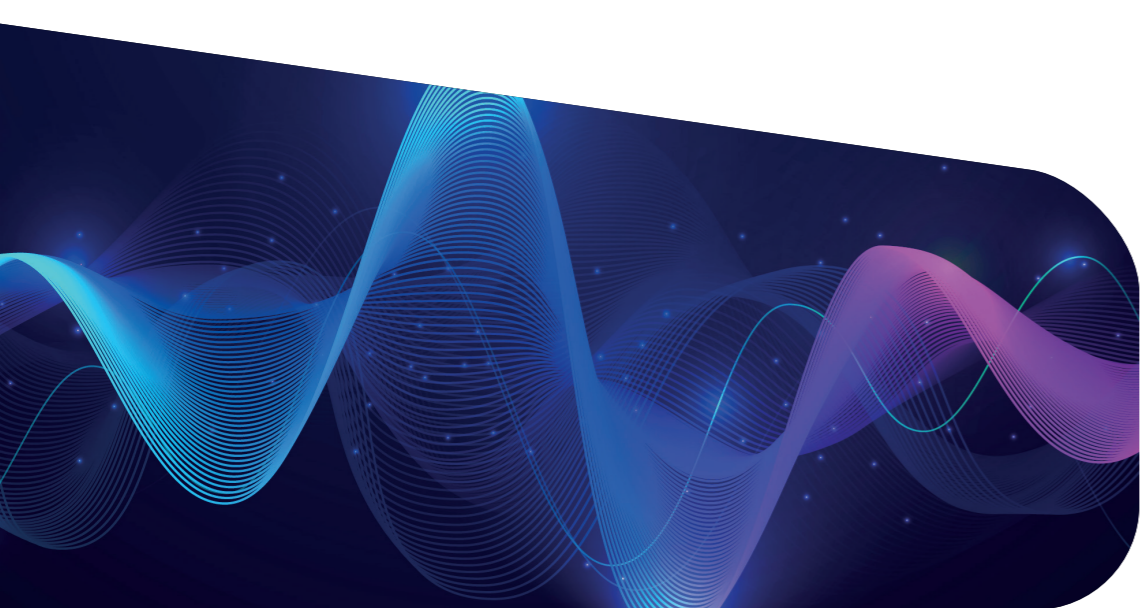


Drums

The drums are often associated with energy, excitement, and rhythm. They are commonly used in rock, pop, and hip-hop music.



It's important to note that these associations can vary based on cultural context and bias.



Tempo & Volume

Tempo and volume are two important elements in music that contribute to the emotional impact and overall feel of a piece of music. They can be adjusted and manipulated by a composer or sound designer to enhance the emotional impact of a scene or to create a specific atmosphere or mood.

Tempo refers to the speed or pace of a musical composition. It can range from slow and relaxed to fast and energetic. A slower tempo can create a feeling of calmness and tranquillity, while a faster tempo can evoke excitement or even anxiety. The tempo of a piece can also be used to match the pacing of a scene in a film or video, creating a more cohesive overall effect.

Volume, on the other hand, refers to the loudness or softness of the music. It can be used to create a sense of tension or drama, as well as to create contrast between different sections of a piece. A sudden increase in volume, for example, can be used to create a sense of surprise or to draw attention to a particular moment in a scene.

Besides tempo and volume, other properties of music that can convey emotional impact include:

Melody: The melody of a piece of music can evoke certain emotions depending on its complexity, range, and pitch.

Harmony: Harmony refers to the chords and progression of the music. The use of major or minor chords, for example, can convey different emotions.

Timbre: Timbre refers to the tone colour or quality of sound of an instrument or voice. Different instruments and voices have their unique timbres, which can evoke specific emotional responses.

Rhythm: Rhythm refers to the pattern of notes and beats in the music. The use of syncopation, for example, can create tension or excitement.

Lyrics: If a piece of music has lyrics, the words and their meaning can convey emotions.

Musical structure: The structure of a piece of music, such as the use of repetition, can evoke certain emotions.

All of these elements work together to create the emotional impact of a piece of music, and they can be manipulated by the composer or music supervisor to achieve a specific emotional effect in a film or other media.

This Virtual Production Workshop Series has been created by Breda University of Applied Sciences, within the scope of VPSN Erasmus+ Project.



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