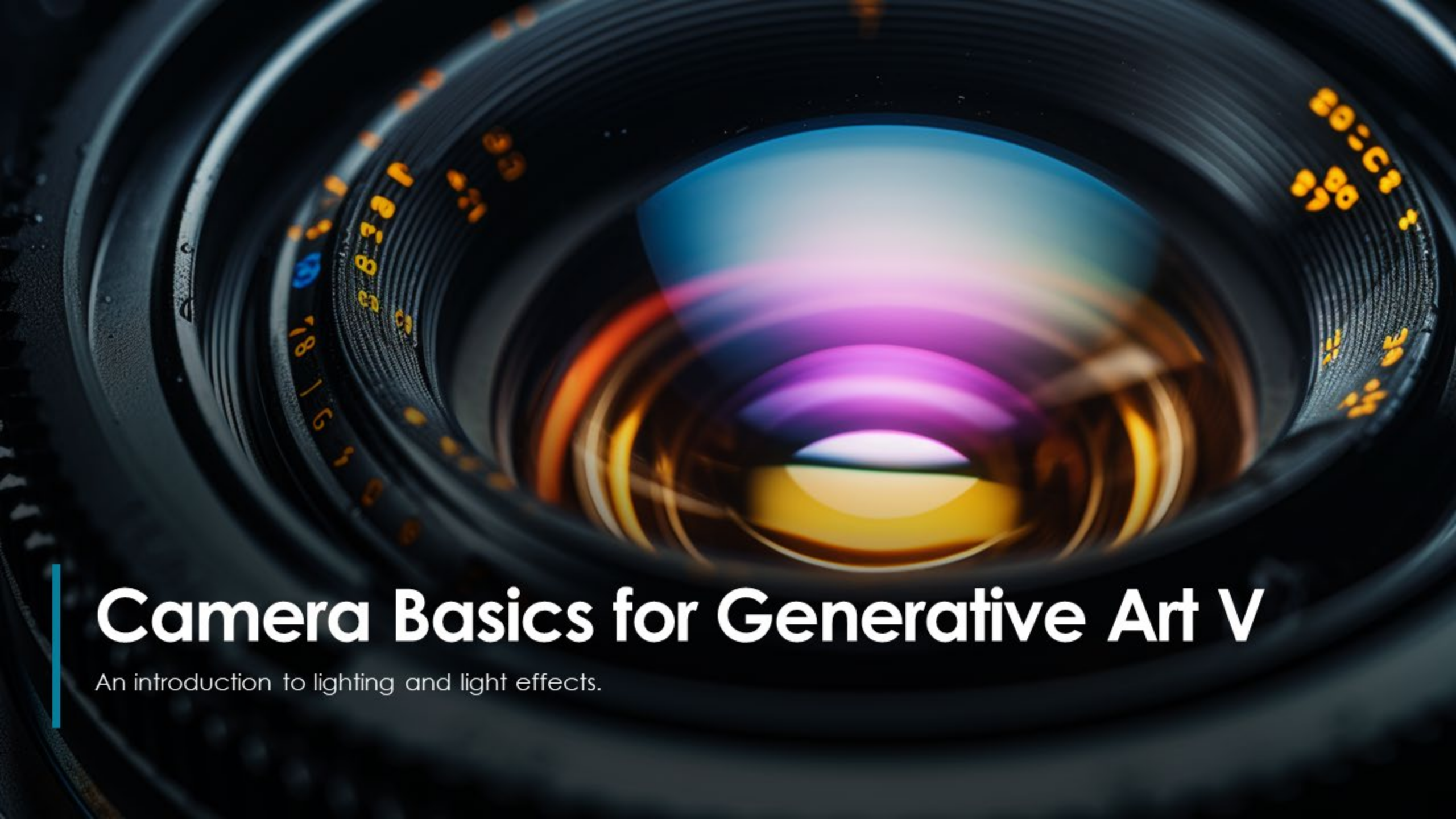
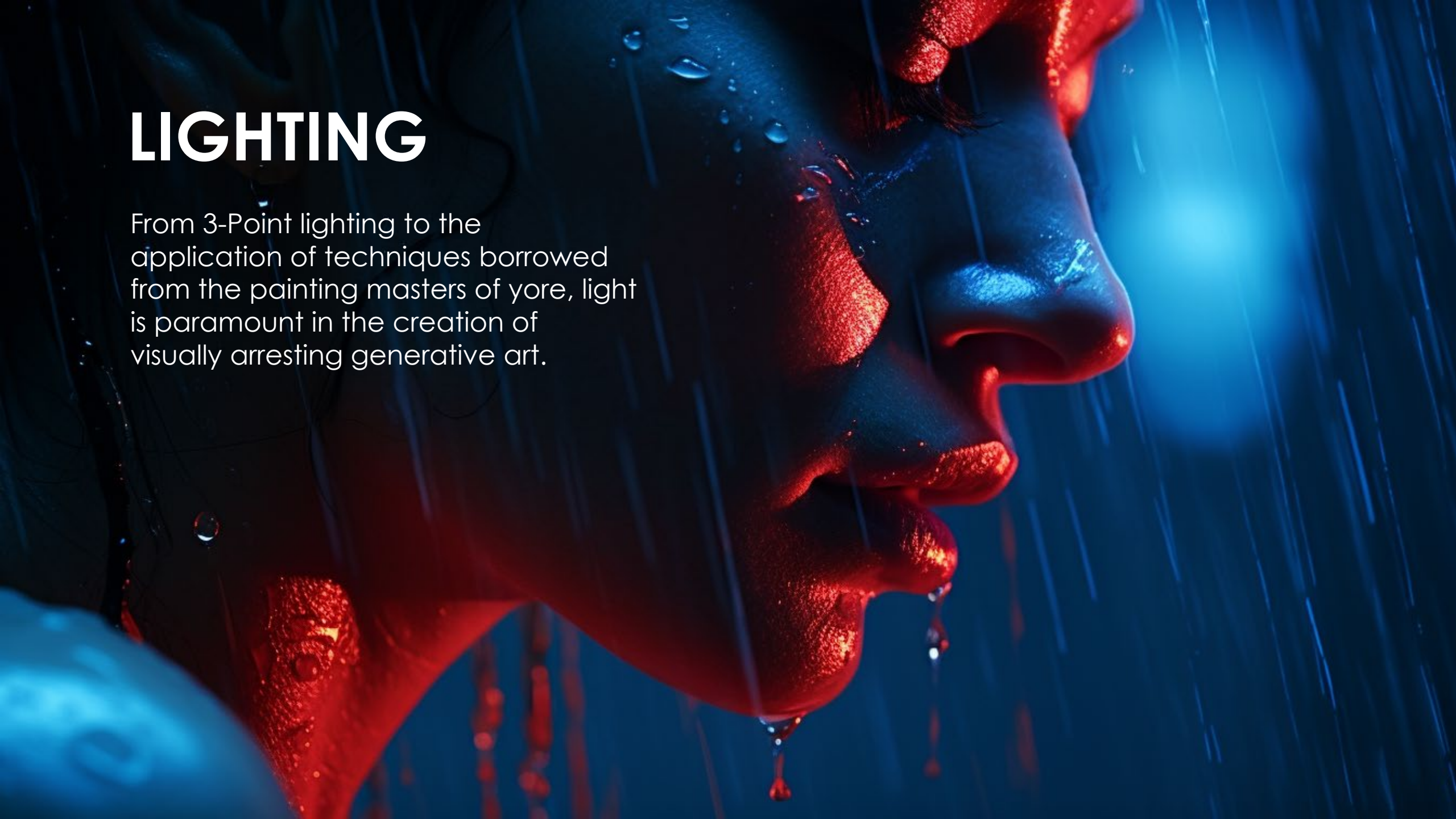


Camera Basics for Generative Art V

An introduction to lighting and light effects.



LIGHTING

From 3-Point lighting to the application of techniques borrowed from the painting masters of yore, light is paramount in the creation of visually arresting generative art.

What is light?

https://en.wikipedia.org/wiki/Light_in_painting

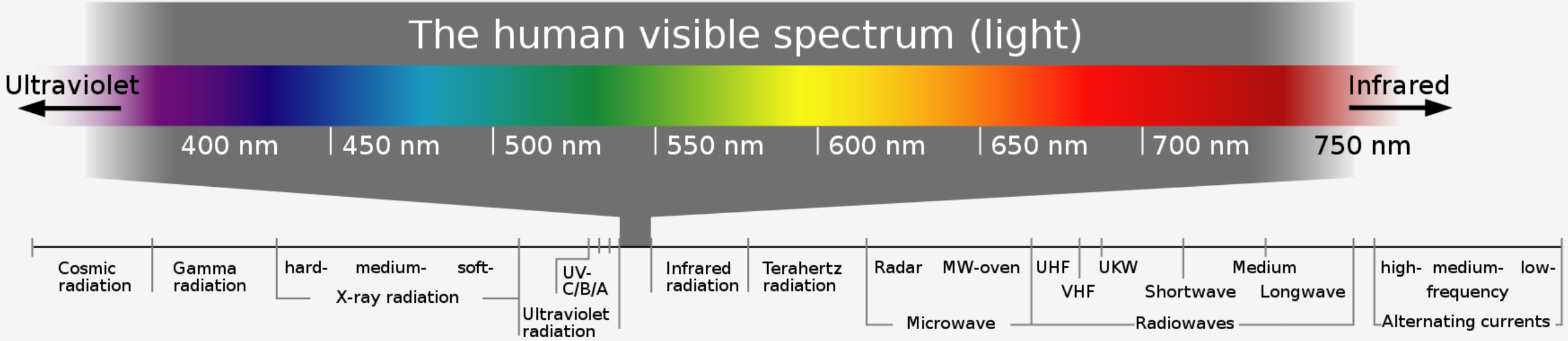
Light is an electromagnetic radiation with a wavelength, the part of the visible spectrum that is perceived by the human eye, located between infrared and ultraviolet radiation. It consists of massless elementary particles called photons, while in matter it depends on its refractive index. The branch of physics that studies the behavior and characteristics of light is **optics.**

Light is the physical agent that makes objects visible to the human eye. Its origin can be in celestial bodies such as the sun, the moon, or the stars, natural phenomena such as lightning, or in materials in combustion, ignition, or incandescence. Throughout history, human beings have devised different procedures to obtain light in spaces lacking it, such as torches, candles, candlesticks, lamps or, more recently, electric lighting. Light is both the agent that enables vision and a visible phenomenon in itself, since light is also an object perceptible by the human eye. Light enables the perception of color, which reaches the retina through light rays that are transmitted by the retina to the optic nerve, which in turn transmits them to the brain by means of nerve impulses. The perception of light is a psychological process and each person perceives the same physical object and the same luminosity in a different way.

https://en.wikipedia.org/wiki/Light_in_painting

Physical objects have different levels of l**uminance** (or reflectance), that is, they absorb or reflect to a greater or lesser extent the light that strikes them, which affects the color, from white (maximum reflection) to black (maximum absorption). Both black and white are not considered colors of the conventional chromatic circle, but gradations of brightness and darkness, whose transitions make up the **shadows**. When white light hits a surface of a certain color, photons of that color are reflected; if these photons subsequently hit another surface they will illuminate it with the same color, an effect known as **radiance** — generally perceptible only with intense light. If that object is in turn the same color, it will reinforce its level of colored luminosity, i.e. its **saturation**.

White light from the sun consists of a continuous spectrum of colors which, when divided, forms the colors of the rainbow: **violet, indigo blue, blue, green, yellow, orange, and red**. In its interaction with the Earth's atmosphere, sunlight tends to scatter the shorter wavelengths, i.e. the blue photons, which is why the sky is perceived as blue. On the other hand, at sunset, when the atmosphere is denser, the light is less scattered, so that the longer wavelengths, red, are perceived.



Color is a specific wavelength of white light. Note the following relates to additive colors, as they relate to light; subtractive colors are expressed through pigments. The **colors of the chromatic spectrum have different shades or tones**, which are usually represented in the chromatic circle, where the **primary colors** and their derivatives are located. **There are three primary colors: lemon yellow, magenta red, and cyan blue.** If they are mixed, the three **secondary colors** are obtained: **orange red, bluish violet, and green**. If a primary and a secondary are mixed, the tertiary colors are obtained: greenish blue, orange yellow, etc.

On the other hand, complementary colors are two colors that are on opposite sides of the chromatic circle (green and magenta, yellow and violet, blue and orange) and adjacent colors are those that are close within the circle (yellow and green, red and orange). **If a color is mixed with an adjacent color, it is shaded, and if it is mixed with a complementary color, it is neutralized (darkened)**. Three factors are involved in the definition of color**: hue,** the position within the chromatic circle; **saturation**, the purity of the color, which is involved in its brightness — the maximum saturation is that of a color that has no mixture with black or its complementary; and **value**, the level of luminosity of a color, increasing when mixed with white and decreasing when mixed with black or a complementary.

https://en.wikipedia.org/wiki/Light_in_painting

NATURAL LIGHTING

Light that occurs in nature, rather than the confines of a studio, can be impactful in its familiarity.

What is natural light?

https://en.wikipedia.org/wiki/Light_in_painting

The main source of light is the sun and its perception can vary according to the time of day: the most normal is **mid-morning or mid-afternoon light**, generally blue, clear and diaphanous, although it depends on atmospheric dispersion and cloudiness and other climatic factors; **midday light** is whiter and more intense, with high contrast and darker shadows; **dusk light** is more yellowish, soft and warm; **sunset light** is orange or red, low contrast, with intense bluish shadows.

https://s.mj.run/iGSPCvz21qI A rustic barn on a hill at **[insert time of day and descriptors]**, 35mm anamorphic analog quality, style of Gregory Crewdson --seed 2252736747 **[MIDJOURNEY 5.2]**

Mid-morning

Mid-afternoon

Dusk

Sunset

What is natural light?

https://en.wikipedia.org/wiki/Light_in_painting

Evening light is a darker red, dimmer light, with weaker shadows and contrast (the moment known as **alpenglow,** which occurs in the eastern sky on clear days, gives pinkish tones); the light of **cloudy skies** depends on the time of day and the degree of cloudiness, is a dim and diffuse light with soft shadows, low contrast and high saturation (in natural environments there can be a mixture of light and shadow known as **mottled light**); finally, **night light** can be lunar or some atmospheric refraction of sunlight, is diffuse and dim (in contemporary times there is also light pollution from cities).

https://s.mj.run/iGSPCvz21qI A rustic barn on a hill at **[insert time of day and descriptors],** 35mm anamorphic analog quality, style of Gregory Crewdson --seed 2252736747 **[MIDJOURNEY 5.2]**

Evening (Alpenglow)

Cloudy Skies

Night Light

The Occasional Unnatural Light

Interior Light

There is also **natural light that filters indoors**, a diffuse light of lower intensity, with a variable contrast depending on whether it has a single origin or several (for example, several windows), as well as a coloring also variable, depending on the time of day, the weather, or the surface on which it is reflected. An outstanding interior light is the so-called **"north light",** which is the light that enters through a north-facing window, which does not come directly from the sun -always located to the south- and is therefore a soft and diffuse, constant and homogeneous light, much appreciated by artists in times when there was no adequate artificial lighting.

https://en.wikipedia.org/wiki/Light_in_painting

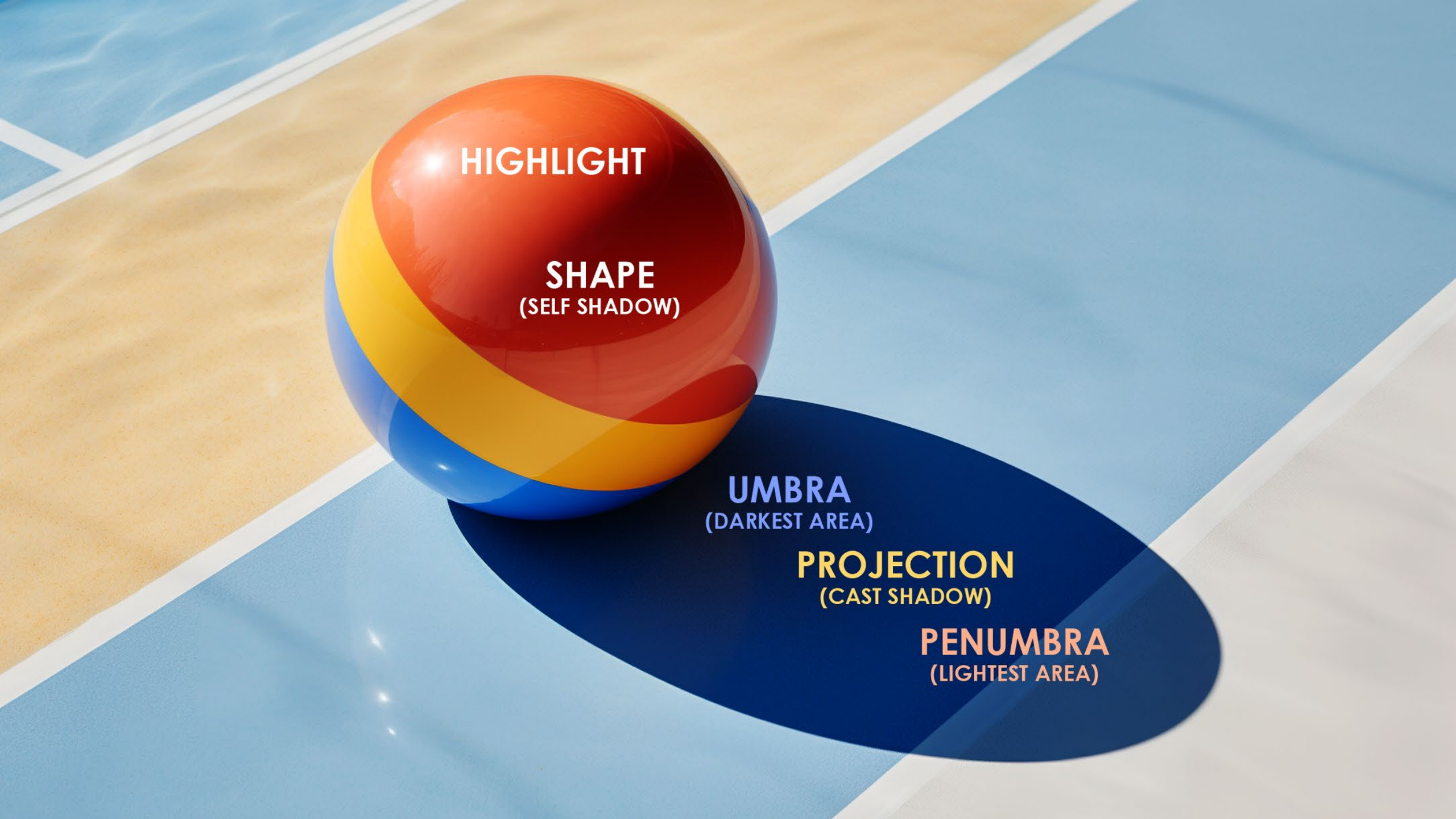
Shadows

The visible reality is made up of a play of light and shadow: **the shadow is formed when an opaque body obstructs the path of the light**. In general, there is a ratio between light and shadow whose gradation depends on various factors, from lighting to the presence and placement of various objects that can generate shadows; however, there are conditions in which one of the two factors can reach the extreme, as in the case of snow or fog or, conversely, at night. **We speak of high key lighting when white or light tones predominate, or low key lighting if black or dark tones predominate.**

Shadows can be of **shape** (also called "self shadows") or of **projection** ("cast shadows"): the former are the shaded areas of a physical object, that is, the part of that object on which light does not fall; the latter are the shadows cast by these objects on some surface, usually the ground. Self shadows define the volume and texture of an object; cast shadows help define space. The lightest part of the shadow is the **penumbra** and the darkest part is the **umbra.**

https://en.wikipedia.org/wiki/Light_in_painting

The Interposition of Mary • 36 x 27 • La Seu II, Barcelona, Spain • 2.2.2004 • f/2.8 • 1/8 sec • 320 ISO • 7 mm • Sony DSC-V1 • Jazno Francoeur

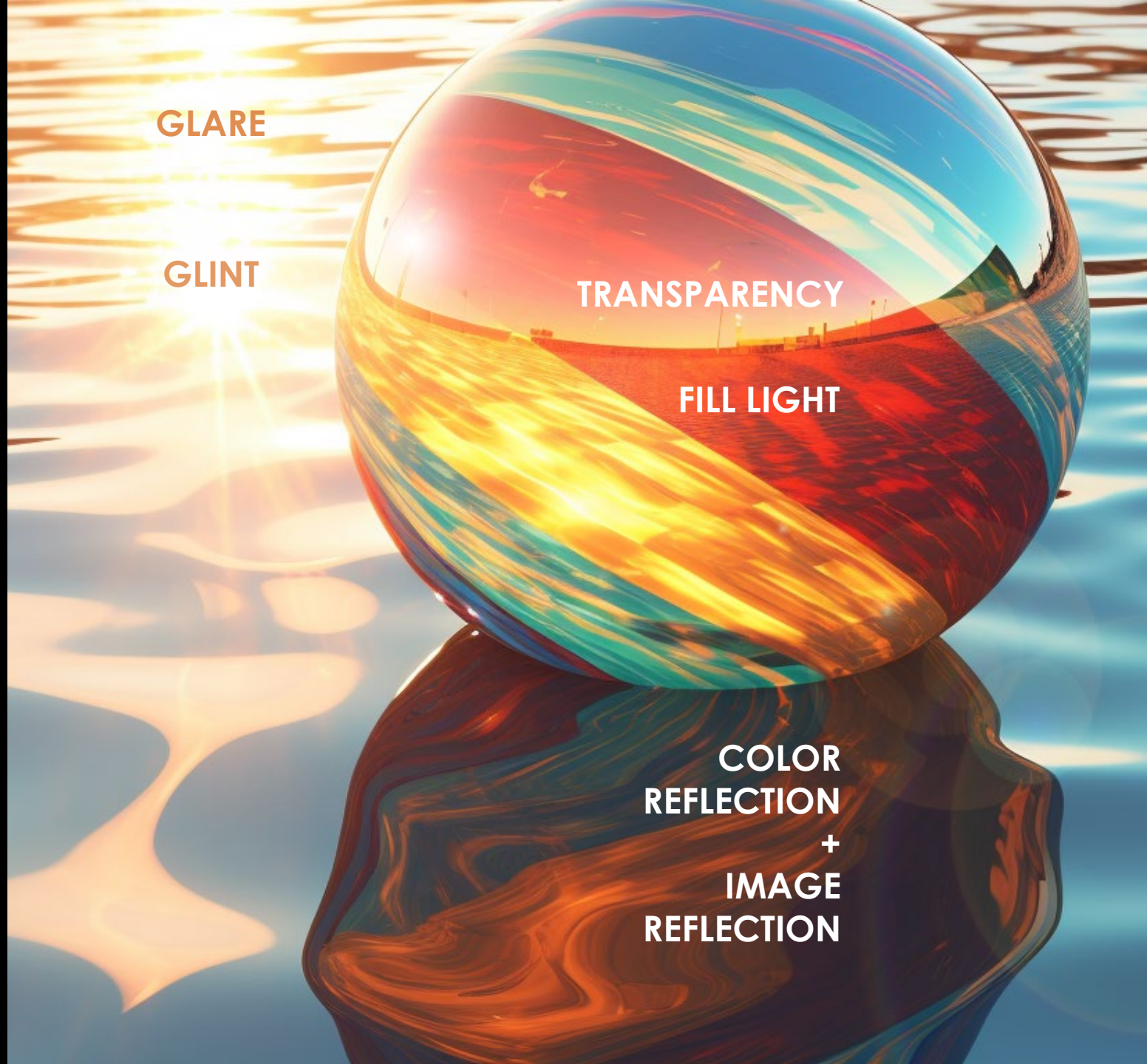

HIGHLIGHT
SHAPE
(SELF SHADOW)
UMBRA
(DARKEST AREA)
PROJECTION
(CAST SHADOW)
PENUMBRA
(LIGHTEST AREA)

Light phenomena

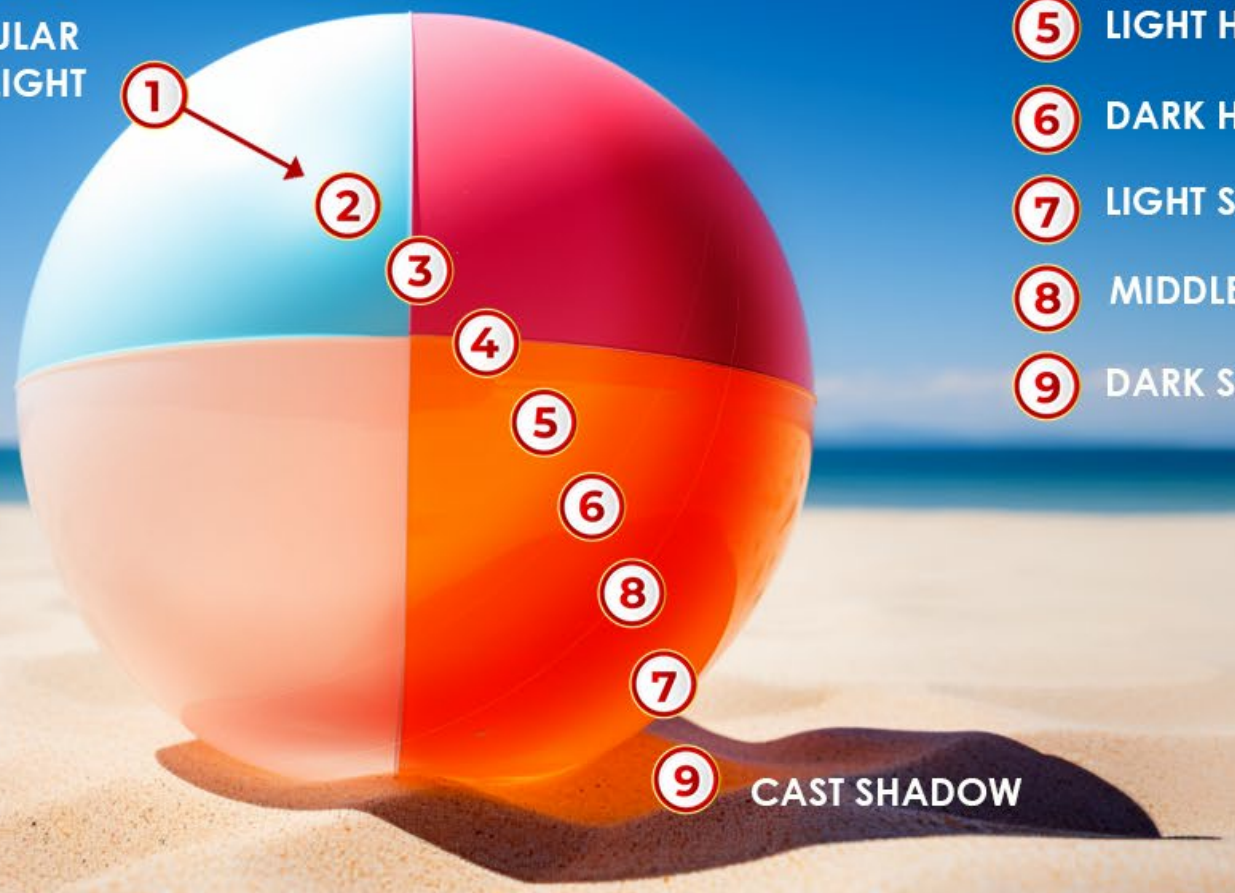
A shadow can receive illumination from a secondary source, known as **fill light.** The color of a shadow is between blue and black, and also depends on several factors, such as light contrast, transparency and translucency. The projection of shadows is different if they come from natural or artificial light: with natural light the beams are parallel and the shadow adapts both to the terrain and to the various obstacles that may intervene; with artificial light the beams are divergent, with less defined limits, and if there are several light sources, combined shadows may be produced.

The reflection of light produces four derived phenomena: glints, which are reflections of the light source, be it the sun, artificial lights or incidental sources such as doors and windows; **glares**, which are reflections produced by illuminated bodies as a reflective screen, especially white surfaces; **color reflections**, produced by the proximity between various objects, especially if they are luminous; and **image reflections**, produced by polished surfaces, such as mirrors or water. Another phenomenon produced by light is **transparency**, which occurs in bodies that are not opaque, with a greater or lesser degree depending on the opacity of the object, from total transparency to varying degrees of translucency. Transparency generates filtered light, a type of luminosity that can also be produced through curtains, blinds, awnings, various fabrics, pergolas and arbors, or through the foliage of trees. **All of the above can be identified in the image to the right.**

https://en.wikipedia.org/wiki/Light_in_painting



CLASSIC ORDER OF LIGHT



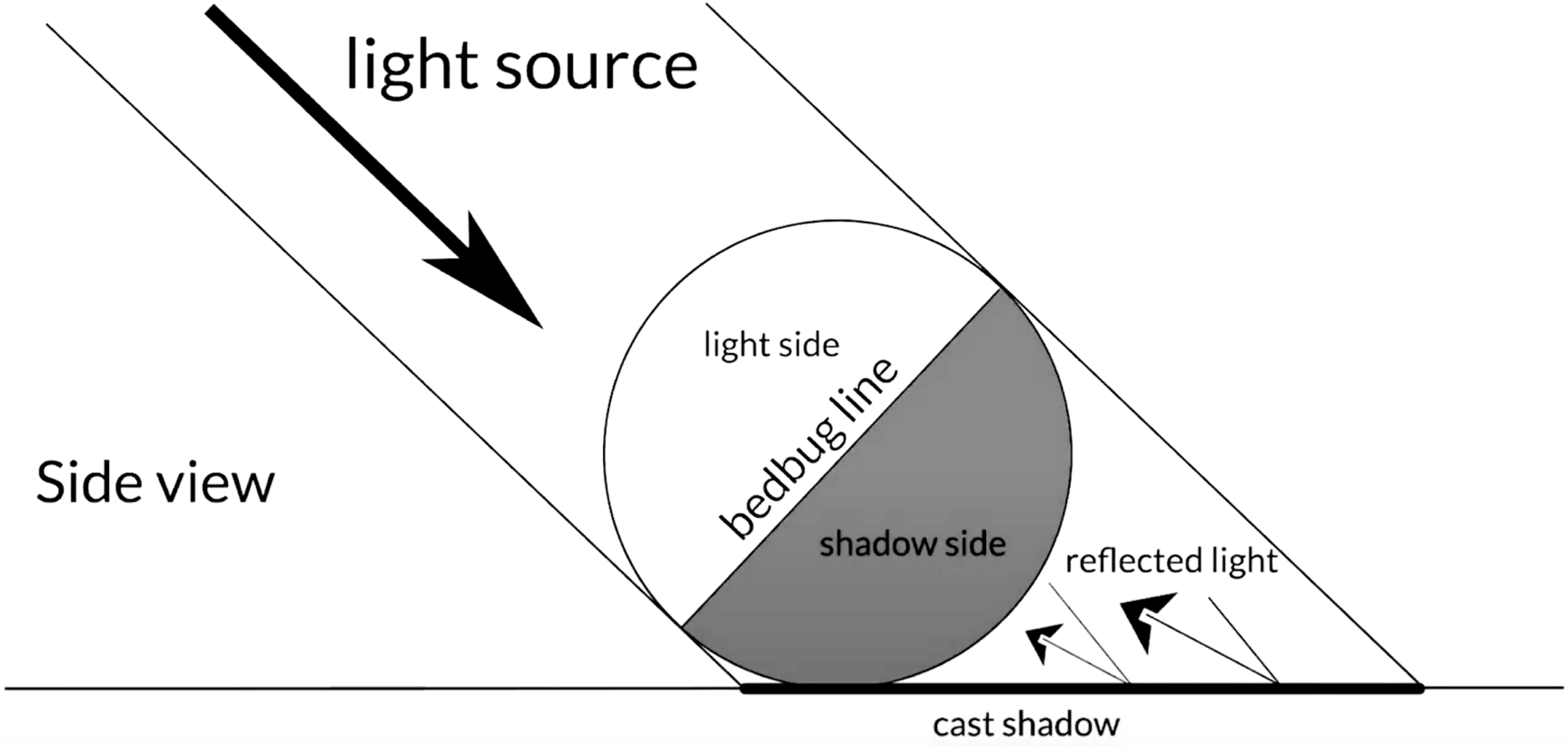
1. HIGHLIGHT
2. LIGHT LIGHT: HALO SURROUNDING HIGHLIGHT
3. MIDDLE LIGHT: LOCAL VALUE
4. DARK LIGHT: MIDDLE
5. LIGHT HALFTONE
6. DARK HALFTONE: SHADOW
7. LIGHT SHADOW
8. MIDDLE SHADOW: CORE SHADOW
9. DARK SHADOW: CAST SHADOW

based on a schematic by Juliette Aristedes & Mike Koepler

Bedbug Line

https://nicolesleethatelier.com/register/shading6/

The bedbug line is the start of the core shadow.

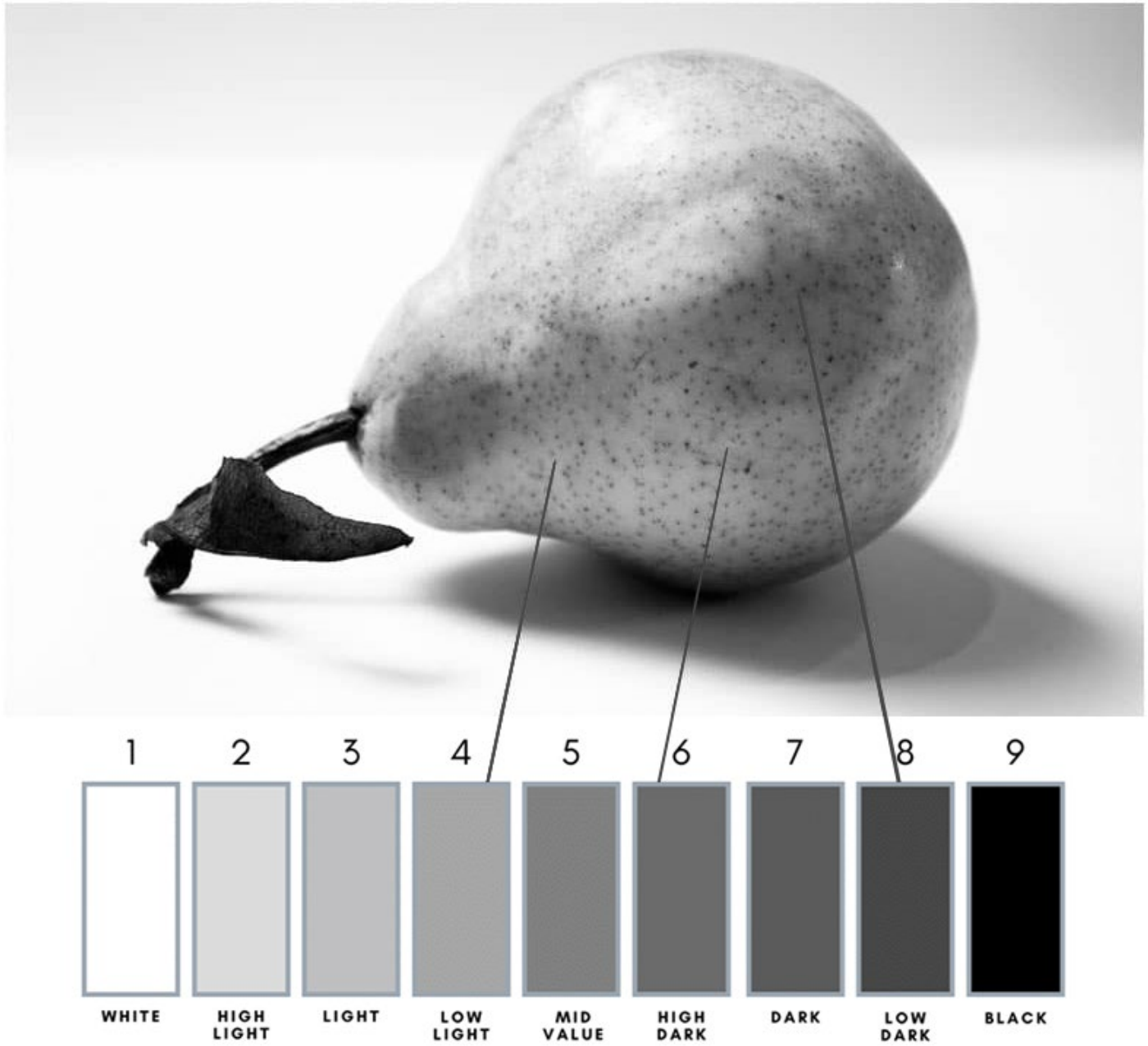


The Classic Order of Light As Expressed Through the Denman Ross Value Scale

Denman Ross invented a value scale in 1907 that artists still use today. It is a scale of 9 values, ranging from white (1) to black (9). The greyscale values between white and black are given names such as ‘high light’ ‘low light’ and ‘mid value’. Use a value scale to determine how the highlights and shadows in your artwork relate to one another. Value is the relative lightness and darkness of color irrespective of saturation and hue.

Value in art is defined as how light or dark a color is. Values are used in art to represent light and shadow. These light and dark tones can be measured in a scale, with the lightest value being white and the darkest value being black. Every color has a value that will fit in that scale irrespective of the saturation and hue.

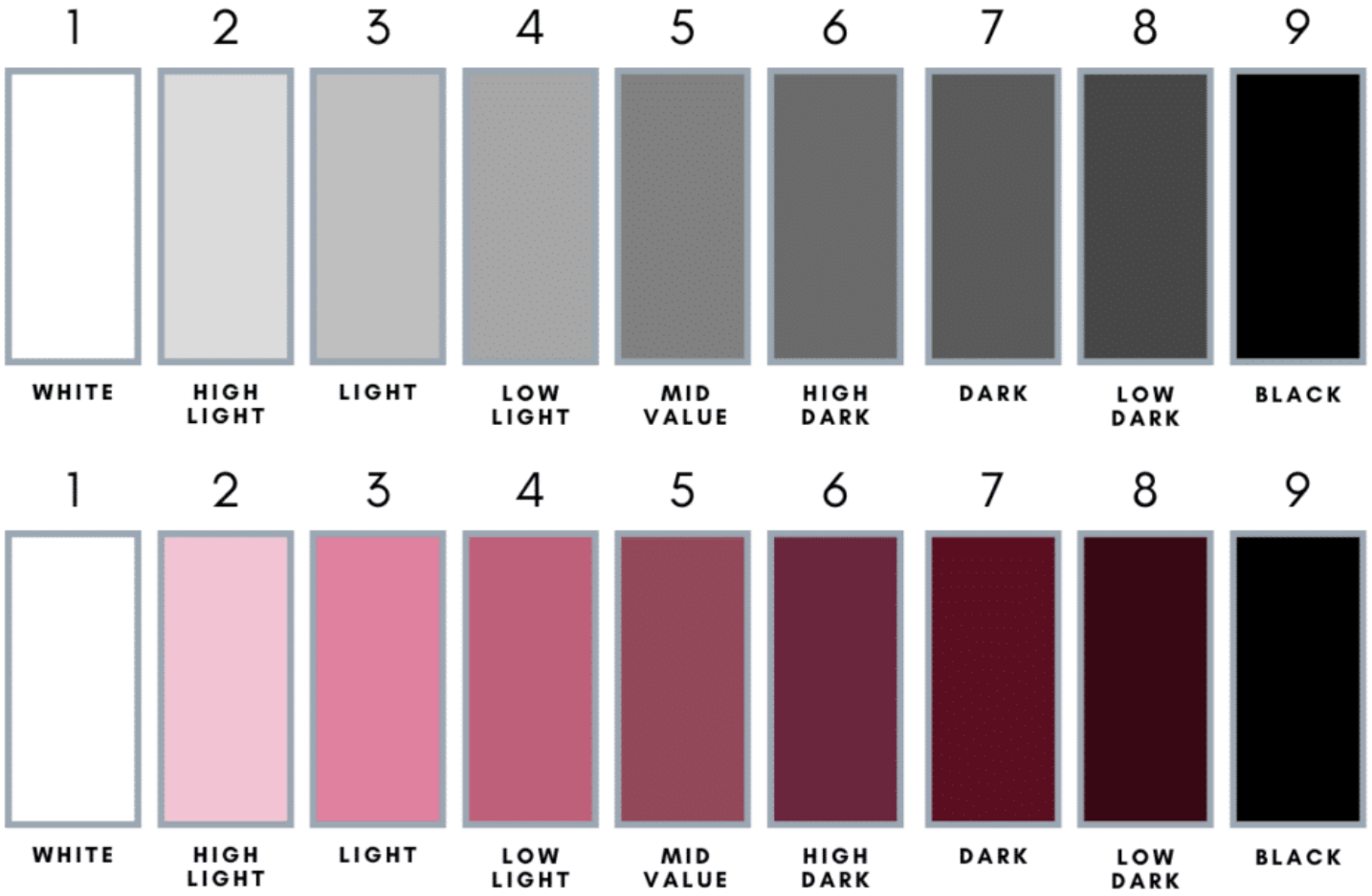
https://finearttutorials.com/guide/value-in-art/
https://www.watercoloraffair.com/value-scale-in-art/



https://finearttutorials.com/guide/value-in-art/

Denman Ross Value Scale and Color

Color can be described by its hue, saturation and value. The value of a color is simply one aspect of it. Hue refers to the color itself, for example red, blue or green. Saturation describes how pure the color is, so a highly saturated color would be very bright, whereas a low saturation color would be more muted. **Value is the relative lightness and darkness of color irrespective of saturation and hue.**

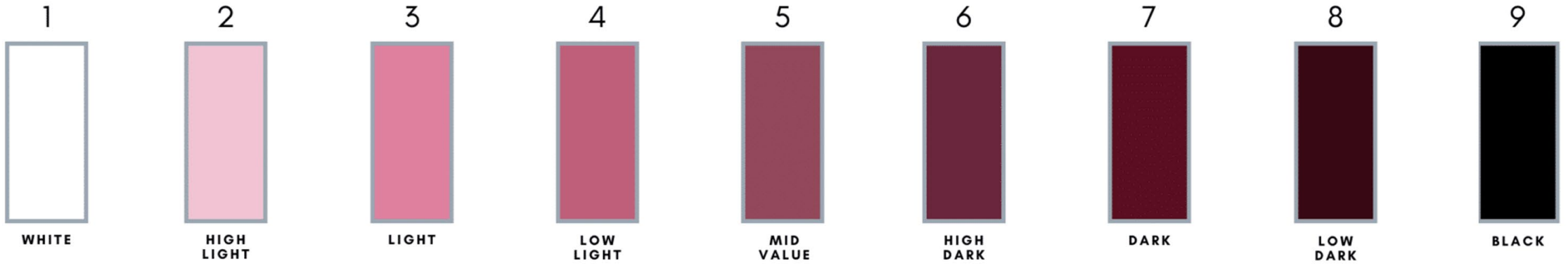


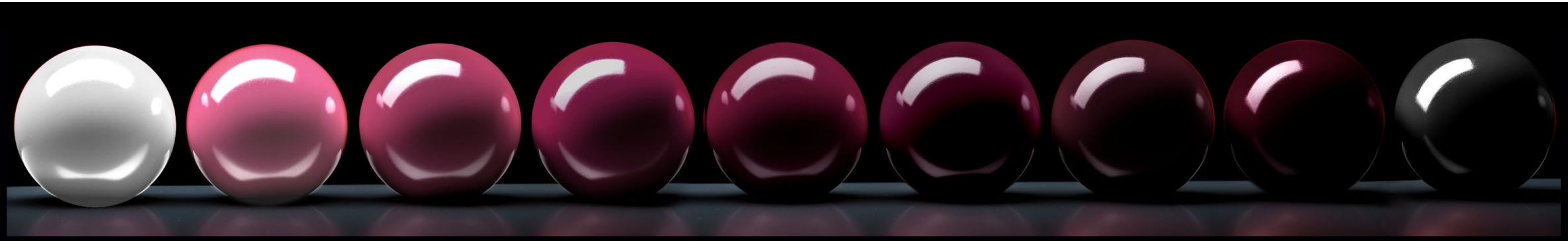
https://finearttutorials.com/guide/value-in-art/

Denman Ross Value Scale and Color

Lightness is technically defined as the perceived brightness of an object compared to that of a perfect white object. Lightness refers specifically to object colors, not colors seen as independent lights, and ranges between black and white through the various shades of grey.

The lightness of a light-reflecting surface depends on the proportion of light energy reflected from a surface, but scale of lightness has a nonlinear relationship to the amount of visible light energy **(luminance**). A middle grey surface that looks as many steps away from white as it does from black reflects only about 18% of the light energy reflected by a white surface.





Natural high key Lighting

The visible reality is made up of a play of light and shadow: **the shadow is formed when an opaque body obstructs the path of the light**. In general, there is a ratio between light and shadow whose gradation depends on various factors, from lighting to the presence and placement of various objects that can generate shadows; however, there are conditions in which one of the two factors can reach the extreme, as in the case of snow or fog or, conversely, at night. **We speak of high key lighting when white or light tones predominate, or low key lighting if black or dark tones predominate.**

High key lighting is basically eliminating shadows by letting more light into the camera, so the majority of the tones in the photograph are in the highlight region. This gives the photograph a positive mood and a sense of calmness. You might have noticed high key photography especially in kids' photographs, model shoots, and product photography. The high key effect highlights the subject well which is why it is widely used in commercial shoots. Usually, the key tones in any image are the midtones. So, the high key means we are mapping the key tones or midtones to a higher level. I.e. we are brightening the key tones — as simple as that. So, normally, the highlight tones become whiter and the shadow tones are mapped to brighter tones, too.

https://shutterstoppers.com/high-key-photography-natural-light
https://en.wikipedia.org/wiki/Light_in_painting
https://www.picturehouses.com/movie-details/013/HO00012648/a24-midsommar

Natural low key Lighting

Low-key lighting is a style of lighting for film and photography that has an emphasis on shadows. The style is achieved by using hard source lighting within the scene. Unlike high key lighting, low-key lighting looks to increase the contrast of the subject and the environment. It does this by using shadows and dark tones. **Shadows, deep blacks, and dark tones are all characteristics of low-key lighting. There are little to no whites and mid-tones.**

You can create low-key images any time of day. You can do it in the midday sun if you are indoors or outdoors on a dull, overcast day – you don't have to wait for dusk. For instance, an overcast day and an industrial, urban scene provide a perfect backdrop for capturing something dark and ominous.

Low key landscapes are maybe not as popular as low key portraiture, but you should give them a try especially if you enjoy unusual landscape photography. Make sure to capture clouds – they make the sky less bright, but they also create dynamic light patterns on the ground. Low key landscapes look stunning when converted to black and white.

https://shutterstoppers.com/high-key-photography-natural-light
https://en.wikipedia.org/wiki/Light_in_painting
https://www.lightstalking.com/low-key-photography/
PHOTO by Karsten Wurth

What is golden hour?

Golden hour is the first hour after sunrise and the last hour of light before sunset that produces a warm natural light. That window of time is determined by where you are geographically, as well as the season. Golden hour occurs when the Sun is between six degrees below the horizon and six degrees above.

This lighting it produces is ideal for photography because of the relationship between the sun's positioning and distance to your subject. During the rise and fall of the sun, it is closer to the subject, and it is also moving through the atmosphere at a much lower angle than usual, producing soft diffused light.

https://www.studiobinder.com/blog/when-is-golden-hour/

Typhoon on Mt. Fuji I • 14.3 x 9.5 • Summit of Mt. Fuji, Japan • 8.11.2010 • f/4.5 • 1/640 sec • 400 ISO • 44 mm • Nikon D300 • Jazno Francoeur

GOLDEN HOUR, ART EXTRAPOLATIONS:

HTTPS://S.MJ.RUN/X-IF5KLD2OS AS A PHOTOREALISTIC PORTRAIT, CANON 5D, **GOLDEN HOUR** --AR 2:3 **[MIDJOURNEY5]**
HTTPS://S.MJ.RUN/1HMC5YQ7SAW AS A PHOTOREALISTIC PORTRAIT, CANON 5D, **GOLDEN HOUR** --AR 3:2 **[MIDJOURNEY5]**

GOLDEN HOUR, EXTRUDED GOPURA:

HTTPS://S.MJ.RUN/X-IF5KLD2OS AS A PHOTOREALISTIC PORTRAIT, CANON 5D, **GOLDEN HOUR** --AR 2:3 **[MIDJOURNEY5]**
HTTPS://S.MJ.RUN/1HMC5YQ7SAW AS A PHOTOREALISTIC PORTRAIT, CANON 5D, **GOLDEN HOUR** --AR 3:2 **[MIDJOURNEY5]**

GOLDEN HOUR, AVALANCHE SERIES:

MASSIVE AVALANCHE INTERPOLATING FROM BLUE TO WHITE, BACKLIT, **GOLDEN HOUR**, FORCED PERSPECTIVE, BIRD'S EYE VIEW, DRAMATIC LIGHTING **[DALL-E 2]**

What is contre-jour?

https://en.wikipedia.org/wiki/Contre-jour

Contre-jour (French for "against daylight") is a photographic technique in which the camera is pointing directly toward a source of light and an equivalent technique of painting. Contre-jour produces **backlighting** of the subject. This effect usually hides details, causes a stronger contrast between light and dark, creates **silhouettes** and emphasizes lines and shapes. The sun, or other light source, is often seen as either a bright spot or as a strong glare behind the subject. **Fill light** may be used to illuminate the side of the subject facing toward the camera.

Awakening • 12.98 x 6.95 • Wat Po, Bangkok, Thailand • 3.10.2010 • f/3.5 • 1/1250 sec • 250 ISO • 18 mm • Nikon D300 • Jazno Francoeur

The Premonition of William Butler Yeats • 14.3 x 9.5 • The Guggenheim, Bilbao, Spain • 3.23.2011 • f/22 • 1/2000 sec • 1600 ISO • 18 mm • Nikon D30 • Jazno Francoeur

Contre-jour = clear silhouettes

Contre-jour allows you to use the effect of strong backlighting to alter the appearance of our subject in an eye-catching way, which also uses high contrast conditions to develop mood and drama in your composition. Photographing into the light will cause a solid object to be underexposed, but this is a style of photography that can reward the viewer with beautiful levels of detail and color when photographing translucent subjects that are backlit. For example, flowers and leaves.

https://www.institute-of-photography.com/contre-jour-photographing-into-the-light/

Diner • 48 x 64 • Alex Prager • *https://www.alexprager.com/selected-work-2021-2022*

CONTRE-JOUR, CONSTRUCTIVIST COWBOYS

RUSSIAN CONSTRUCTIVIST STYLE, STYLE OF FRANK MILLER'S SIN CITY AND FREDERIC REMINGTON, EXPRESSIVE BLACK AND WHITE INK-SPATTERED BACKGROUND, JAPANESE WOODBLOCK PRINT, PLANAR RECTILINEAR SHAPES, LEYENDECKER SHAPES, EXTREME ENERGY AND DYNAMIC POSING, MAN RIDING AGAINST SUN IN **SILHOUETTE**, SMOKE, DUTCH ANGLE, BLACK & WHITE WESTERN --AR 2:1 **[MIDJOURNEY 5.1]**

CONTRE-JOUR, CONSTRUCTIVIST COWBOYS

APACHE WAR PARTY IN **SILHOUETTE IN SUNSET**, CINEMATIC ANGLE, FORCED PERSPECTIVE, BLACK AND WHITE WESTERN, STYLE OF SIN CITY AND FREDERIC REMINGTON, JAPANESE SUN RAYS FROM FLAG, EXPRESSIVE BLACK AND WHITE INK-SPATTERED BACKGROUND WITH RED ACCENTS, JAPANESE WOODBLOCK PRINT, PLANAR RECTILINEAR SHAPES --AR 2:1 **[MIDJOURNEY 5.1]**

CONTRE-JOUR, BERNINI & RODIN CORAL GARDENS SERIES:

FAST-GROWING SEAWEED AND EXOTIC CORAL MAGICALLY GROWING UP AROUND A DROWNING MAN, STYLE OF BERNINI'S DAVID AND JAMES JEAN, NERVE GANGLIA, CAUSTICS, GOD RAYS, **CONTRE-JOUR**, DAPPLED LIGHT, INTERPOLATING FROM BLACK & WHITE TO BLUE TO RED, EXTREME ENERGY AND DYNAMIC POSES --S 750 **[MIDJOURNEY 5.1]**

CONTRE-JOUR, THE LAKHIYANA:

A SERIES OF BOLTS LEADING TO THE HEAVENS, **SILHOUETTES** OF DEV PATEL AND DEEPIKA PADUKONE STARING IN DISTANCE, WARP SPEED, ACID TRIP, BLUE FILL LIGHTS, ORANGE RIM LIGHTS, LONG EXPOSURE, BACK-LIGHTING --AR 3:2 **[MIDJOURNEY 4]**

What is dappled lighting?

Dappled light is produced when sunlight is filtered through the leaves of trees. The dapples result not because tree leaves have elliptical holes in them, but rather because the leaves combine to make many tiny pinhole cameras, which then produce multiple images of the sun's surface on nearby projection surfaces. Thus each dapple is an image of the surface of the sun. If there is a large sunspot on the surface on the sun, that spot will appear within each dapple. Many intriguing events occur on the surface of landscape sculptures, as they borrow Nature's light.

https://www.edwardtufte.com/bboard

Siesta • 2048 x 2038 • Kbal Spean, Cambodia • 8.15.2019 • f/1.8 • 1/100 sec • 25 ISO • 4 mm • iPhone 7 • Jazno Francoeur

DAPPLED LIGHT, HAW PAR VILLA REMIX:

HTTPS://S.MJ.RUN/E9M-UXKAH-A HAW PAR VILLA, SEVERELY CRACKED AND PEELING FACE REVEALING A HAUNTED LIVING OLDER WOMAN UNDERNEATH, BOUNCED LIGHT, HASSELBLAD, GOLDEN HOUR, **DAPPLED LIGHT,** SUBSURFACE SCATTERING, INTERPOLATING FROM GREEN TO BLUE --AR 2:1 --S 750
[MIDJOURNEY NIJI 5]

DAPPLED LIGHT, GUANYIN FABRIC EXPLORATIONS:

HTTPS://S.MJ.RUN/JW7KLE8808S DUTCH ANGLE OF UNDULATING FIGURE IN RIBBONS OF DENSE LEYENDECKER INCENSE SMOKE + CONFETTI, RIO'S CARNIVALE IN THE STYLE OF BASQUIAT, SHIMMERING RIBBONS OF DIMENSIONAL GRAFFITI, SWIRLING PALIMPSEST OF SHAPES, COOL PALETTE, RAY TRACING, REFLECTIONS, **DAPPLED LIGHT,** SUBSURFACE SCATTERING, SPECULAR HIGHLIGHTS --AR 2:1 **[MIDJOURNEY NIJI 5]**

What is volumetric lighting?

Volumetric lighting, or crepuscular rays, is a term used to describe the effect light can have by taking on a cone or beam shape and enhancing the sense of volume in a specific space. More simply, this lighting is the appearance of beams of light in which the space between a light source and its destination is also illuminated. Volumetric lighting is used to create **god rays or beams of light** by shining light through atmospheric mediums like fog or haze.

https://www.studiobinder.com/blog/what-is-volumetric-lighting-definition/

The Bridal Chamber • 28.44 x 21.33 • Eagle Rock, California, USA • 8.5.2007 • f/2.8 • 1/40 sec •100 ISO • 6 mm • Sony DSC-P8 • Jazno Francoeur

What is volumetric lighting used for?

https://www.studiobinder.com/blog/what-is-volumetric-lighting-definition/

- Adding depth
- Directing the audience's eye
- Tone and aesthetic

Below is a scene from Zack Snyder's 300.

VOLUMETRIC LIGHTING, AVALANCHE SERIES:

MASSIVE AVALANCHE, WW II DOCUMENTARY FOOTAGE, HYPER REALISM, BACKLIT, GOLDEN HOUR, IRIDESCENT SNOW, FORCED PERSPECTIVE, INTERPOLATING FROM WHITE TO BLUE, WORM'S EYE VIEW, **CREPUSCULAR RAYS** **[DALL-E 2]**
MASSIVE AVALANCHE INTERPOLATING FROM BLUE TO WHITE, WW II DOCUMENTARY FOOTAGE, HYPER REALISM, BACKLIT, GOLDEN HOUR, FORCED PERSPECTIVE, INTERPOLATING FROM WHITE TO BLUE, BIRD'S EYE VIEW, 32K, ELLIPTICAL LENS FLARE, **CREPUSCULAR RAYS** **[DALL-E 2]**

VOLUMETRIC LIGHTING, CALVING GLACIER SERIES:

STYLE OF WYETH, GHOSTLY UNDERWATER GLACIERS, WIDE ANGLE, CAUSTICS, **SHADOW RAYS**, BACKLIT WHALE, ORANGE DAPPLED LIGHT ON WATER SURFACE, LOOKING UP, BLUE PALETTE, NAT GEO **[DALL-E 2]**

MAJESTIC AND MASSIVE GLACIERS UNDERWATER, FRENETIC BUBBLES WITH BLUE HIGHLIGHTS, DAPPLED LIGHT ON SURFACE OF WATER, **GOD RAYS**, LOOKING UP, GIANT WHALE, STYLE OF SARGENT, BACKLIGHT **[DALL-E 2]**

VOLUMETRIC LIGHTING, CALVING GLACIER SERIES:

MAJESTIC AND MASSIVE GLACIERS UNDERWATER, FRENETIC BUBBLES WITH BLUE HIGHLIGHTS, DAPPLED LIGHT ON SURFACE OF WATER, **GOD RAYS**, LOOKING UP, STYLE OF SARGENT, BACKLIGHT **[STABLE DIFFUSION]**

VOLUMETRIC LIGHTING, FRACTAL FRESCOES:

DUTCH ANGLE, HOLOGRAPHIC EXTRUSION OF JESUS ON THE CROSS WITH ANGELS IN THE SISTINE CHAPEL EMERGING FROM 2D TO 3D, RECTILINEAR BYZANTINE SHAPES, INFINITE REGRESS, DIMENSIONAL REFLECTIVE GRAFFITI WRAPPED AROUND FIGURES AND WHORLING ROBES, RAY TRACING, **GOD RAYS**, SUBSURFACE SCATTERING, GOLDEN HOUR --AR 2:1 **[MIDJOURNEY NIJI 5]**

VOLUMETRIC LIGHTING, FRACTAL FRESCOES:

HOLOGRAPHIC EXTRUSION OF GOD IN THE SISTINE CHAPEL EMERGING FROM 2D TO 3D, INFINITE REGRESS, RAY TRACING, REFLECTIVE, DYNAMIC COLOR, **GOD RAYS**, SUBSURFACE SCATTERING, GOLDEN HOUR --AR 2:1 **[MIDJOURNEY NIJI 5]**

VOLUMETRIC LIGHTING, THE LAKHIYANA:

A FUTURISTIC GOLDEN CATAPHRACT FLYING IN A SUPERHERO POSE TOWARD CAMERA IN FORCED PERSPECTIVE THROUGH COLORFUL **BEAMS OF WARP SPEED LIGHT** HOLDING GLOWING DISCS, MULTIPLE EXPOSURE, MOTION BLUR OPTIMIZED PHOTON CAPTURE, DRAMATIC ANGLE --AR 3:2 **[MIDJOURNEY 4]**

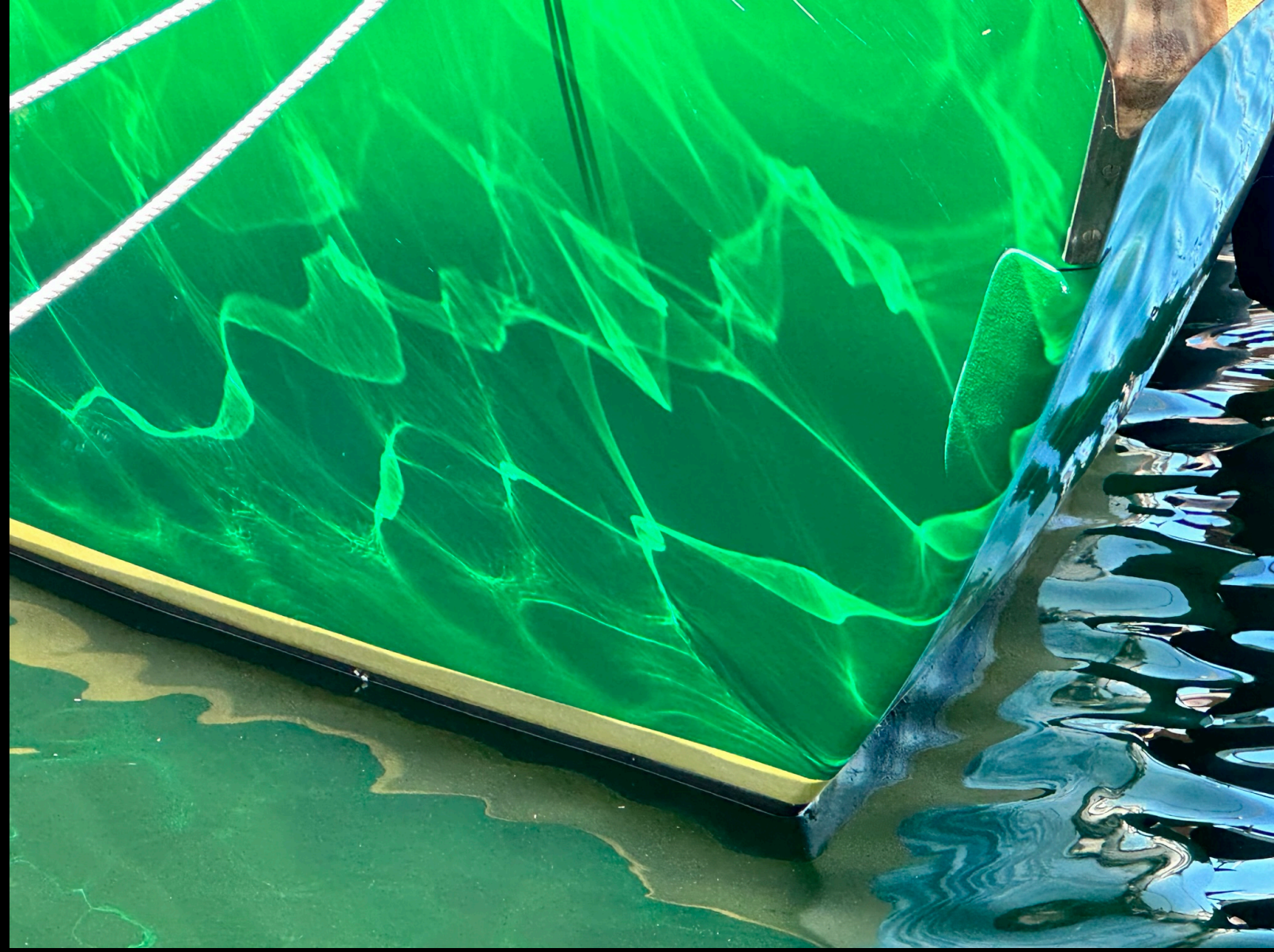
BRIGHT LIGHTING, DAY TIME, LONG EXPOSURE, SUNLIGHT BEAMING THROUGH WINDOWS, **VOLUMETRIC LIGHTING,** 45-YEAR-OLD DEV ANAND POPE IN A CATHEDRAL BLESSING A YOUNG FEMALE CARDINAL, RESEMBLES CHARITHRA CHANDRAN AND ZHANG ZILIN, VAN HERPEN STYLE --AR 2:1 **[MIDJOURNEY 4]**

What are caustics?

In optics, a **caustic** or caustic network is the envelope of light rays which have been reflected or refracted by a curved surface or object, or the projection of that envelope of rays on another surface. The caustic is a curve or surface to which each of the light rays is tangent, defining a boundary of an envelope of rays as a curve of concentrated light. Therefore, in the photo to the right, caustics can be seen as patches of light or their bright edges. These shapes often have cusp singularities.

In computer graphics, most modern rendering systems support caustics. Some of them even support volumetric caustics. This is accomplished by raytracing the possible paths of a light beam, accounting for the refraction and reflection. Photon mapping is one implementation of this. Volumetric caustics can also be achieved by volumetric path tracing.

https://en.wikipedia.org/wiki/Caustic_(optics)



The Center for Wooden Boats • 2048 x 2048 • Seattle, WA • 7.2.2023 • f/2.8 • 1/99 sec • 32 ISO • 50 mm • iPhone 14 Pro Max • Jazno Francoeur

Roger Deakins + Caustic Patterns, Blade Runner 2049

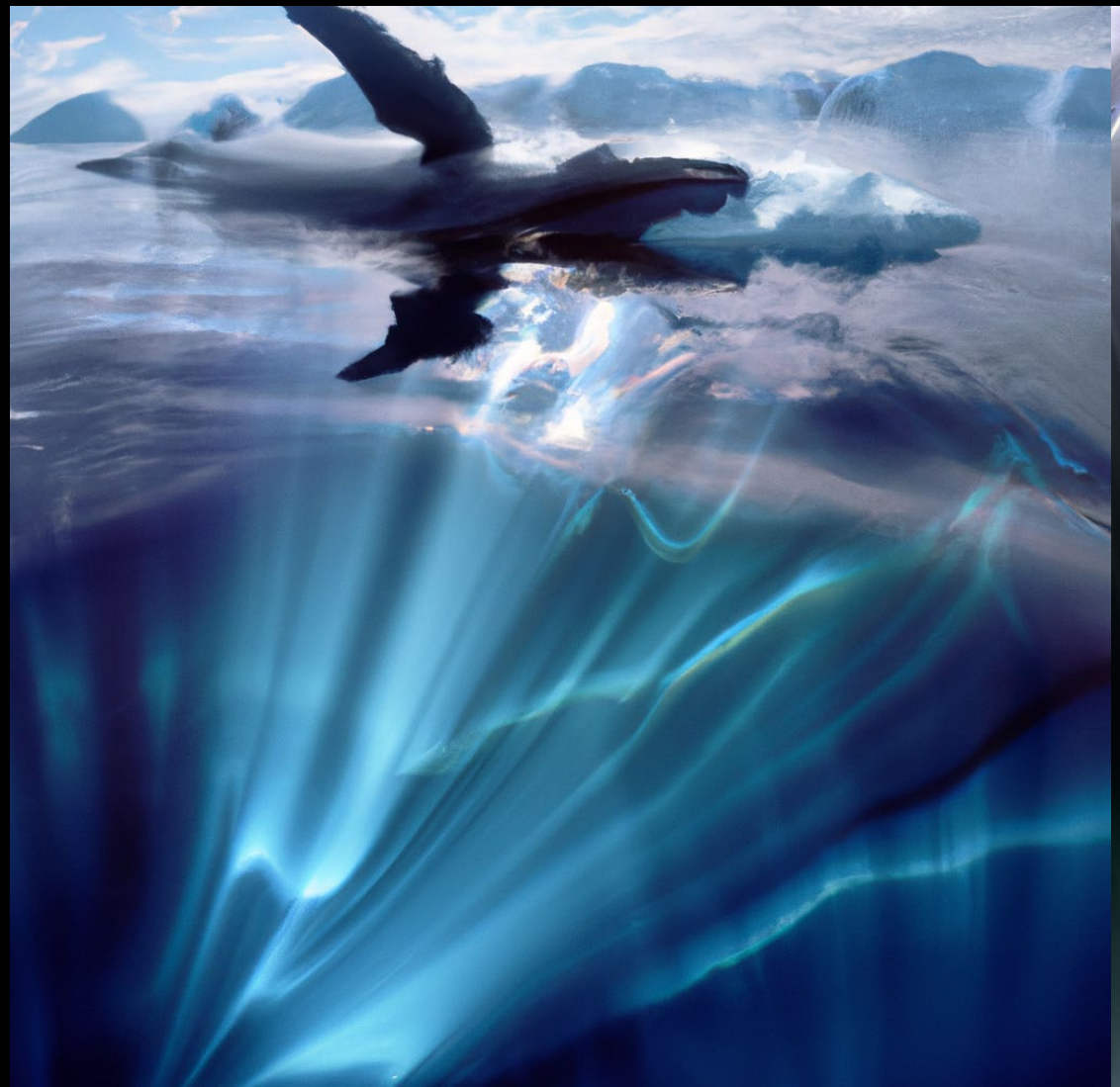
In this scene, light reflected off of the water onto large concrete walls behind the characters. According to Deakins, the idea of the water reflections **"was to play with water with caustic patterns to evoke different emotions."** This idea was undoubtedly achieved and resulted in one of the more emotional and beautiful dialogue scenes of the film.

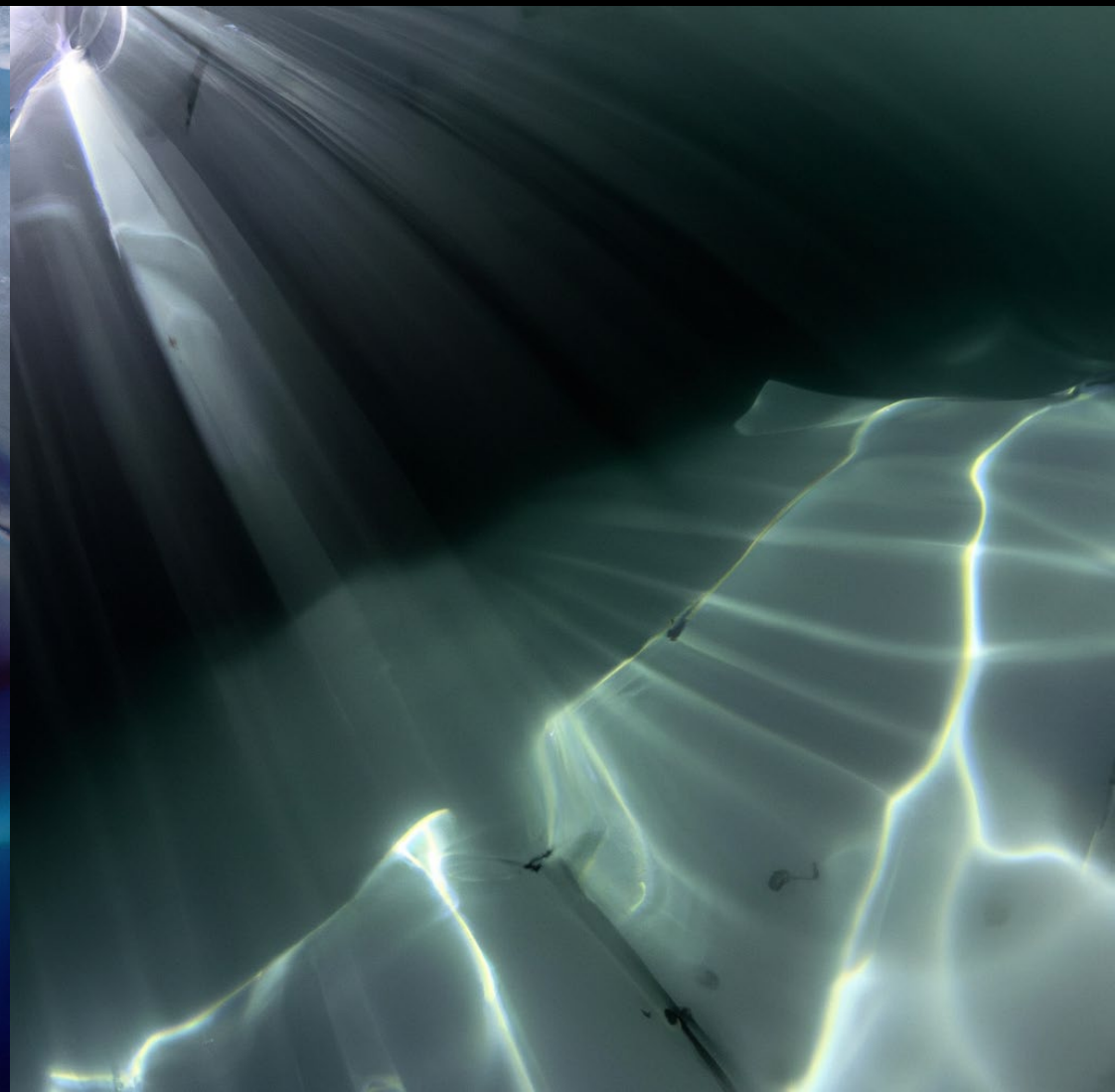
https://www.studiobinder.com/blog/water-light-reflection-effect/

CAUSTICS, CALVING GLACIER SERIES:

STYLE OF ANSEL ADAMS, GHOSTLY UNDERWATER GLACIERS, WIDE ANGLE, **CAUSTICS,** SHADOW RAYS, BACKLIT WHALE, ORANGE DAPPLED LIGHT ON WATER SURFACE, LOOKING UP, BLUE PALETTE, NAT GEO **[DALL-E 2]**

STYLE OF VERMEER, GHOSTLY ROWS OF GLACIERS, WIDE ANGLE, **CAUSTICS**, SHADOW RAYS, DRAMATIC, LOOKING UP, PHOTON CAPTURE **[DALL-E 2]**





CAUSTICS, THE FLOWER:

PINK LOTUS FLOWER IN WATERFALL, **CAUSTICS,** SPECULARITY, SARGENT STYLE, GOLDEN HOUR, TIME LAPSE, QUANTIFIED PHOTON CAPTURE, HOKUSAI, SCANNING ELECTRON MICROSCOPE **[DALL-E 2]**

What is rainbow refraction?

Rainbows are formed when light from the sun is scattered by water droplets (e.g. raindrops or fog) through a process called refraction. **Refraction** occurs when the light from the sun changes direction when passing through a medium denser than air, such as a raindrop. Once the refracted light enters the raindrop, it is reflected off the back and then refracted again as it exits and travels to our eyes.

Sunlight is made of many different wavelengths, or colors, that travel at different speeds when passing through a medium. This causes the white light to split into different colors. Longer wavelengths appear as red and shorter wavelengths appear as blue or violet. We see the color spectrum of the rainbow as the light passes through the raindrop at different angles of approximately two degrees, from red to violet. This is not a true spectrum as the colors mix and blur throughout the spectacle. The angle of scatter from raindrops is different for everyone which means that every rainbow is unique to the observer.

https://www.rmets.org/metmatters/how-are-rainbows-formed

Chihuly Glass Museum• 4032 x 3024 • Seattle, Washington, USA • 9.3.2017 • f/22 •1/30 sec• 200 ISO • 415 mm • iPhone 6 • Jazno Francoeur

RAINBOW REFRACTION, SUBURBIA:

GREGORY CREWDSON STYLE MEETS JENNY SAVILLE, DUTCH ANGLE, FORCED PERSPECTIVE, HOUSE COLLAPSING, EXPLOSION OF COLORS, STYLE OF GIGER, ELECTROLUMINESCENCE, **RAINBOW REFRACTION**, SOLARGRAM, KODAK AEROCHROME --AR 3:2 **[MIDJOURNEY 5.2]**

RAINBOW REFRACTION, SUBURBIA:

GREGORY CREWDSON STYLE, DUTCH ANGLE, FORCED PERSPECTIVE, EXTREME CLOSEUP OF ALIEN CREATURE UNDERWATER TELEPORTING INTO INFINITY, ELECTROLUMINESCENCE, **RAINBOW REFRACTION,** SOLARGRAM, KODAK AEROCHROME --AR 2:1 --STYLE RAW **[MIDJOURNEY 5.2]**

MASTER LIGHTING

Many lighting techniques we use today were invented and perfected by master painters, from Da Vinci to Caravaggio to Rembrandt.

What is the importance of light in painting?

Light in painting fulfills several objectives, both plastic and aesthetic: on the one hand, it is a fundamental factor in the technical representation of the work, since **its presence determines the vision of the projected image**, as it affects certain values such as color, texture and volume; on the other hand, **light has a great aesthetic value**, since its combination with shadow and with certain lighting and color effects can determine the composition of the work and the image that the artist wants to project. Also**, light can have a symbolic component,** especially in religion, where this element has often been associated with divinity.

The incidence of light on the human eye produces visual impressions, so its presence is indispensable for the capture of art. At the same time, light is intrinsically found in painting, since it is indispensable for the composition of the image: the play of light and shadow is the basis of drawing and, in its interaction with color, is the primordial aspect of painting, with a direct influence on factors such as modeling and relief. **To the right is Georges de La Tour's famous work, *Magdalene With the Smoking Flame*.**

https://en.wikipedia.org/wiki/Light_in_painting
https://portlandartmuseum.org/exhibitions/masterworks-portland-georges-de-la-tour/

What is the importance of light in painting?

The technical representation of light has evolved throughout the history of painting, and various techniques have been created over time to capture it, such as **shading, chiaroscuro, sfumato, or tenebrism**. On the other hand, light has been a particularly determining factor in various periods and styles, such as Renaissance, Baroque, Impressionism, or Fauvism. The greater emphasis given to the expression of light in painting is called **"luminism",** a term generally applied to various styles such as Baroque tenebrism and impressionism, as well as to various movements of the late 19th century and early 20th century such as American, Belgian, and Valencian luminism.

Light is the fundamental building block of observational art, as well as the key to controlling composition and storytelling. It is one of the most important aspects of visual art.

—Richard Yot

To the right is Georges de La Tour's famous work, *The Penitent Magdalene*.

https://en.wikipedia.org/wiki/Light_in_painting
https://portlandartmuseum.org/exhibitions/masterworks-portland-georges-de-la-tour/

What is chiaroscuro?

Chiaroscuro is an Italian term used to describe the technique of using light and dark in artwork, particularly a painting. It originally comes from the Renaissance art movement and combines the Italian words: “chiaro” meaning “clear” or “bright,” and “oscuro” meaning “obscure” or “dark.” It refers to the dramatic effect experienced when using contrasting areas of light and dark in a visual piece. **Its most famous practitioners were Caravaggio, Rembrandt, and Da Vinci.**

In cinematography, the term refers to low and high-contrast lighting, which creates areas of light and dark in films. This applies especially to black and white films, notably German Expressionist films. Later on, Hollywood Film Noir made chiaroscuro lighting a standard style.

In photography, chiaroscuro can be achieved by using **Rembrandt lighting.** In more highly developed photographic processes, the technique may be termed "ambient/natural lighting", although when done so for the effect, the look is artificial and not generally documentary in nature.

https://www.studiobinder.com/blog/what-is-chiaroscuro-definition-examples/

Twilight of the Idols • 30.41 x 22 • Seattle, Washington, USA • 11.24.2007 • f/2.8 • 1/100 sec • 80 ISO • 4.6 mm • Panasonic DMC-FX01 • Jazno Francoeur

Rembrandt, master of chiaroscuro

Rembrandt was one of the most famous practitioners of this technique, which is on full display in **The Man with the Golden Helmet** to the right, as well as many other famous paintings (such as **The Night Watch**).

Rembrandt used lighting effects to achieve an impression of depth. He came up with the use of a spotlight in painting – a beam of light lightens the head and shoulders of the main figure, while leaving everything else in shadow. This creates a dramatic theatrical effect. **The Man in Oriental Dress** of 1632 is one of the first paintings where this approach was used. Here are other examples: **Portrait of Joris de Caullery, Portrait of Antonis Coopal and Portrait of Philips Lucasz.**

Such **chiaroscuro** was also used in history paintings, where the center of the composition is lit with light and the periphery with background is in shadow. This light effect helps the viewer focus on the main area of the painting. Rembrandt also used such light effects to differentiate planes, as, for example, in **The Anatomy Lesson of Droctor Tulp.**

https://oldmasters.academy/old-masters-academy-art-lessons/rembrandts-visual-effects-chiaroscuro

CHIAROSCURO, PARLE DOUCEMENT:

SHADOW UNDER NOSE, SPOTLIGHT, **CHIAROSCURO,** KIERNA SHIPKA AS A NARCISSTIC FLAPPER STARING DIRECTLY IN MIRROR APPLYING MAKEUP IN A 1923 NEW YORK MOVIE, BUTTERFLY LIGHTING, BLUE KEY LIGHT, STYLE OF SCHINDLER'S LIST AND ROGER DEAKINS --AR 2:1 **[MIDJOURNEY 4]**

CHIAROSCURO, THE LAKHIYANA:

AN ANTHROPOMORPHIZED GRIZZLY BEAR NAMED JAMBAVAN IN SILHOUETTE, SURROUNDED BY MELTED CANDLES IN CAVE, ESTABLISHING SHOT, **CHIAROSCURO**, 85MM, DIFFUSE-BACK-LIGHTING, LOW-CONTRAST --AR 2:1 **[MIDJOURNEY 4]**

CHIAROSCURO, CHIAROSCURO COWBOYS:

GEORGE WASHINGTON AS A SOUTHERNER AT A BAR IN FRONT OF AMERICAN FLAG, STYLE OF JOEL PETER WITIKIN AND JOHN SINGER SARGENT, BACKLIT, COLORED **FILM NOIR**, COWBOY BOOTS, BLUE EYES **HALF COVERED IN SHADOW**, DRAMATIC LIGHTING **[DALL-E 2]**

PLATO AS A SOUTHERNER DRIVING A 70'S SOUPED-UP MUSTANG, REFLECTIONS ON WINDSHIELD, RAY TRACING, REFLECTIVE, **CHIAROSCURO**, EXTREME CLOSE-UP, COLORED FILM NOIR, EMERGING FROM SMOKE, BACKLIT, SMOKING CIGARETTE, FORCED PERSPECTIVE **[DALL-E 2]**

What is tenebrism?

Tenebrism is a lighting style that's defined by expressive contrast between light and dark. Tenebrism is derived from the Italian tenebroso, which means "dark, gloomy, or mysterious." Some art historians refer to this style as "dramatic illumination" because subjects in tenebrist works are often depicted under a harsh singular light source. **Caravaggio is credited with creating tenebrist lighting.**

Characteristics of tenebrism:

- Dramatic use of light to create strong contrasts between light and dark
- Use of few colors, often restricted to grey tones
- Concentration on simple tone/color shifts rather than complicated modelling or other techniques
- Absence of shadowing or modelling in the backgrounds.
- A sense of drama created through exaggeration

https://www.studiobinder.com/blog/what-is-tenebrism-art-definition/

Flank Inner Jib Man! • 14.3 x 9.5 • San Francisco, CA • 4.1.2012 • f/5.6 • 1/80 sec • 2000 ISO • 150 mm • Nikon D800 • Jazno Francoeur

Caravaggio, master of tenebrism

Tenebrism is a style of painting using especially pronounced chiaroscuro, where there are violent contrasts of light and dark, and where darkness becomes a dominating feature of the image. The technique was developed to add drama to an image through a spotlight effect, and is common in Baroque paintings. Tenebrism is used only to obtain a dramatic impact while chiaroscuro is a broader term, also covering the use of less extreme contrasts of light to enhance the illusion of three-dimensionality.

Caravaggio's John the Baptist, to the right, is one of the preeminent examples of both tenebrism and chiaroscuro. Stark contrasts of light and dark accentuate the perception that the figure leans forward, out of the deep shadows of the background and into the lighter realm of the viewer's own space. The brooding melancholy of the painting has attracted the attention of many commentators.

https://en.wikipedia.org/wiki/John_the_Baptist
https://www.studiobinder.com/blog/what-is-tenebrism-art-definition/

TENEBRISM, DEATH AND TRANSFIGURATION:

ANDREW WYETH STYLE, CLOSE-UP PROFILE JUDAS IN COCYTUS ARGUING WITH SATAN, PALIMPSEST OF HOLOGRAPHIC SGRAFFITO REVEALING HAUNTING EBAUCHE OF ASTRAL ANGELS, **TENEBRIST LIGHTING,** BLUE TO RED, DIMENSIONAL FROTTAGE AND IMPASTO, FOG, KÁRMÁN VORTEX STREETS, ELECTROLUMINESCENCE --AR 2:1 **[MIDJOURNEY 5.2]**

TENEBRISM, DEATH AND TRANSFIGURATION:

ANDREW WYETH STYLE, CLOSE-UP OF MUHAMMED'S NIGHT JOURNEY, PALIMPSEST OF HOLOGRAPHIC SGRAFFITO REVEALING HAUNTING EBAUCHE OF ASTRAL ANGELS, **TENEBRIST LIGHTING**, BLUE TO RED, DIMENSIONAL FROTTAGE AND IMPASTO, FOG, KÁRMÁN VORTEX STREETS, ELECTROLUMINESCENCE --AR 2:1 **[MIDJOURNEY 5.2]**

What is sfumato?

Sfumato is a painting technique for softening the transition between colors, mimicking an area beyond what the human eye is focusing on, or the out-of-focus plane. It is one of the canonical painting modes of the Renaissance. Leonardo da Vinci was the most prominent practitioner of sfumato, based on his research in optics and human vision, and his experimentation with the camera obscura. He introduced it and implemented it in many of his works, including the Virgin of the Rocks and in his famous painting of the Mona Lisa. He described sfumato as "without lines or borders, in the manner of smoke.

Historians discovered da Vinci applied very thin, nearly transparent layers of oil paint with his fingers over many months to slowly build up the glowing, softly focused image of Mona Lisa. In fact, he would apply 20 to as many as 40 layers of paint. This technique allowed him to not only realistically duplicate the translucency of skin, but also to create such a lifelike presence that the subject appeared to actually be in the room, as if she were sitting in a window. To paint on a flat surface a vision of someone not confined to that surface required the artist to hold two paradoxical thoughts in mind simultaneously — flatness, but with the illusion of realistic three-dimensional form.

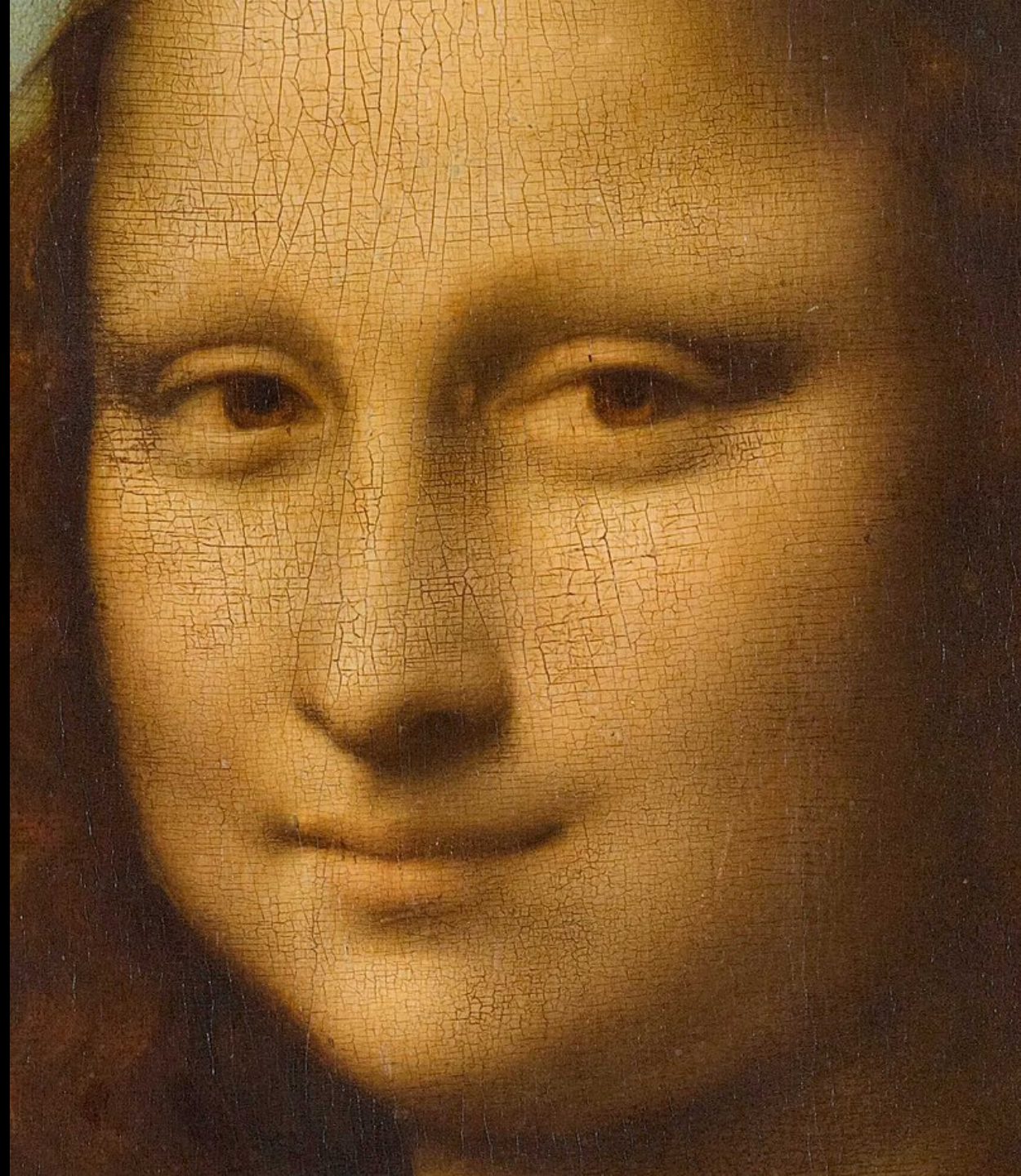
https://drawpaintacademy.com/sfumato/
https://en.wikipedia.org/wiki/Sfumato

Da Vinci, master of sfumato

Da Vinci himself described the **sfumato** technique as "without lines or borders, in the manner of smoke or beyond the picture plane." During the Renaissance, oil painting underwent radical changes as artists learned to manipulate the new theories of linear perspective to create ever greater depth of space and lifelike images. In one sense, the quest to eliminate the flatness of the painting surface, and indeed the picture plane itself, from an image could be considered a natural outgrowth of those investigations. However, taken in the context of the time, it was still a rather radical idea — if it could even be achieved at all. Nonetheless, the Italian Master came closer than anyone else with his Mona Lisa.

In the close-up to the right, notice the soft transitions between light and dark tones and the lack of hard edges. The result is a very smooth appearance. The opposite of this would be the broken color used by the Impressionists, which featured thick texture and rough edges.

https://drawpaintacademy.com/sfumato/
https://www.artistsnetwork.com/art-mediums/oil-painting/whats-sfumato-with-you/



SFUMATO, NIGHT WATCH TESTS:

SFUMATO, STYLE OF MONA LISA, DREAMY AND HAZY PORTRAIT OF A MAN IN PERIOD CLOTHING AS PART OF REMBRANDT'S NIGHT WATCH, SHROUD OF TURIN TEXTURES, EXTREME CLOSE-UP, SALT PRINT, TENEBRISM --AR 2:1 **[MIDJOURNEY 5.2]**

SFUMATO, NIGHT WATCH TESTS:

SFUMATO, STYLE OF MONA LISA, DREAMY AND HAZY PORTRAIT OF A MAN IN PERIOD CLOTHING AS PART OF REMBRANDT'S NIGHT WATCH, SHROUD OF TURIN TEXTURES, EXTREME CLOSE-UP, SALT PRINT, TENEBRISM --AR 2:1 **[MIDJOURNEY 5.2]**

What is Rembrandt lighting?

Rembrandt lighting is a technique utilizing one light and one reflector or two separate lights. It's a popular technique because it creates images that look both dramatic yet natural. It's predominantly characterized by a lit-up triangle underneath the subject's eye on the less illuminated area of the face (fill side). This is known as **the Rembrandt triangle**.

Traditionally, the triangle should be no wider than the subject's eye and no longer than the nose. But many filmmakers askew this rule slightly. You can alter the dramatic quality of this technique by adjusting the distance between the lights and the subject. You can also adjust the strength of the fill and main lights until it looks just right.

https://www.studiobinder.com/blog/rembrandt-lighting-photography/

The Queen Was in the Parlor • 7360 x 4932 • Seattle, WA • 12.9.2014 • f/18 • 1/125 sec • 2000 ISO • 50 mm • Nikon D800 • Jazno Francoeur

How to create the Rembrandt lighting look

- Use "window light" for a softer light that works to enhance the effect
- Cloudy days work best, especially when the sun is low
- Place your subject closer or further from the light source to control the amount of light

https://www.studiobinder.com/blog/rembrandt-lighting-photography/

Victory • 8.6 x 9.46 • The Killing Fields, Cambodia • 2.4.2011 • f/18 • 1/1250 sec • 3200 ISO • 24 mm • Nikon D300 • Jazno Francoeur

REMBRANDT LIGHTING, SENEGALESE PIONEERS:

SENEGALESE CHILD PIRATE FROM THE 16TH CENTURY IN THE ARCTIC, STARING AT VIEWER WITH HAUNTED EYES, STYLE OF SARGENT, STYLE OF GOYA, GOLDEN HOUR, NAT GEO, CURATED COLLECTION, **REMBRANDT LIGHTING,** BLUE FILL LIGHTS, BACKLIT **[DALL-E 2]**

STUDIO LIGHTING

Lighting holds the same level of importance in cinematic storytelling as a script and its subject. Filmmakers have been exploring techniques for illuminating scenes for as long as the art form has been in existence.

How does artificial lighting work?

Fire has been one of the first sources of **artificial lighting** known to humans and it is still used by a significant proportion of people around the world. The first modern electrical light sources worked on very similar principles as that of fire.

Incandescent light bulbs, for example, emit light when heated.

Similarly, **halogen lamps** also use tungsten filament and a mixture of noble gases which allow the tungsten to heat up without melting. This makes the light brighter, more efficient, and long-lasting.

Fluorescent lamps use the fluorescence of a phosphor coating to produce visible artificial light. The phosphorous coating glows in response to the intense UV light produced by the mercury vapors inside.

LED or Light Emitting Diodes, on the other hand, require less heat to produce more light than other traditional lamps. These are semiconductor devices that emit light when current flows through them. These not only produce the least amount of heat but also last longer and save energy and sources.

https://tekled.co.uk/blogs/blog/lighting-what-artificial

ARTIFICIAL LIGHTING TESTS, PARLE DOUCEMENT:

HTTPS://S.MJ.RUN/HKPKHEQSE0O **[INSERT LIGHT],** TAYLOR SWIFT FROM 1923 MOVIE --SEED 815347689 --AR 2:3 **[MIDJOURNEY 5.2]**

NORMAL

INFARED

ULTRAVIOLET

VACUUM TUBE

HALOGEN

PLASMA

XENON

HELIUM

ARTIFICIAL LIGHTING TESTS, PARLE DOUCEMENT:

HTTPS://S.MJ.RUN/HKPKHEQSE0O **[INSERT LIGHT],** TAYLOR SWIFT FROM 1923 MOVIE --SEED 815347689 --AR 2:3 **[MIDJOURNEY 5.2]**

FLUORESCENT

TESLA COIL

SCHWARZ LANTERN

NEON

DIYA LAMP

INCANDESCENT

LASER

NIGHT LIGHT

ARTIFICIAL LIGHTING TESTS, PARLE DOUCEMENT:

HTTPS://S.MJ.RUN/HKPKHEQSE0O **[INSERT LIGHT],** TAYLOR SWIFT FROM 1923 MOVIE --SEED 815347689 --AR 2:3 **[MIDJOURNEY 5.2]**

GLOW STICK

KRYPTON

STROBOSCOPE

OPTICAL FIBER

CARBIDE LAMP

ARGAND LAMP

NIXIE LAMP

FLARE

https://www.studiobinder.com/blog/basics-of-film-lighting-techniques/

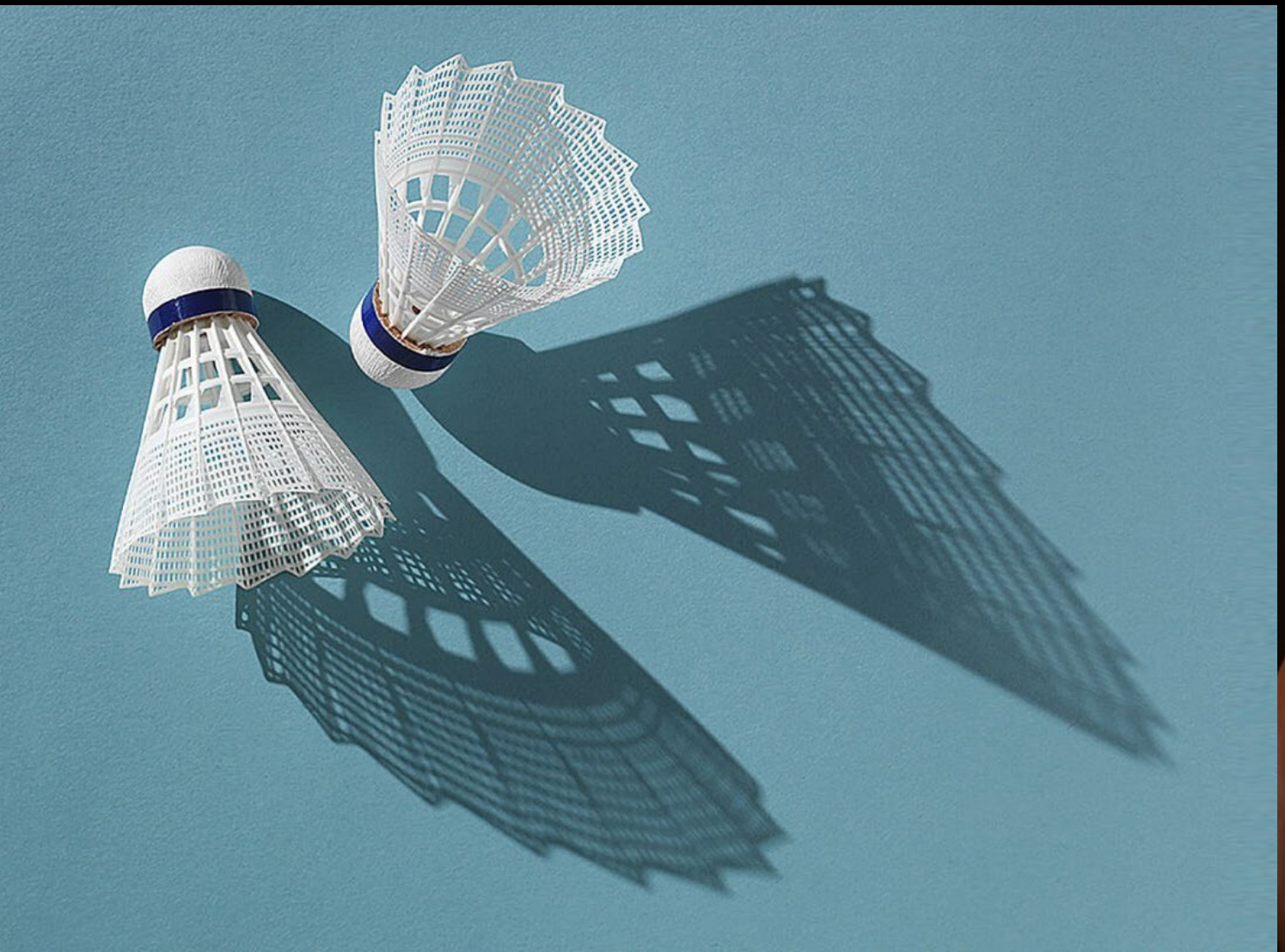
4 Types of Light

There are **four types of light** that every aspiring artist should recognize: **hard, soft, diffused, and specular.** Differentiating between the four can be tough for the untrained eye.

https://broncolor.swiss/news/hard-soft-and-diffused-light-what-is-the-difference

Hard Light

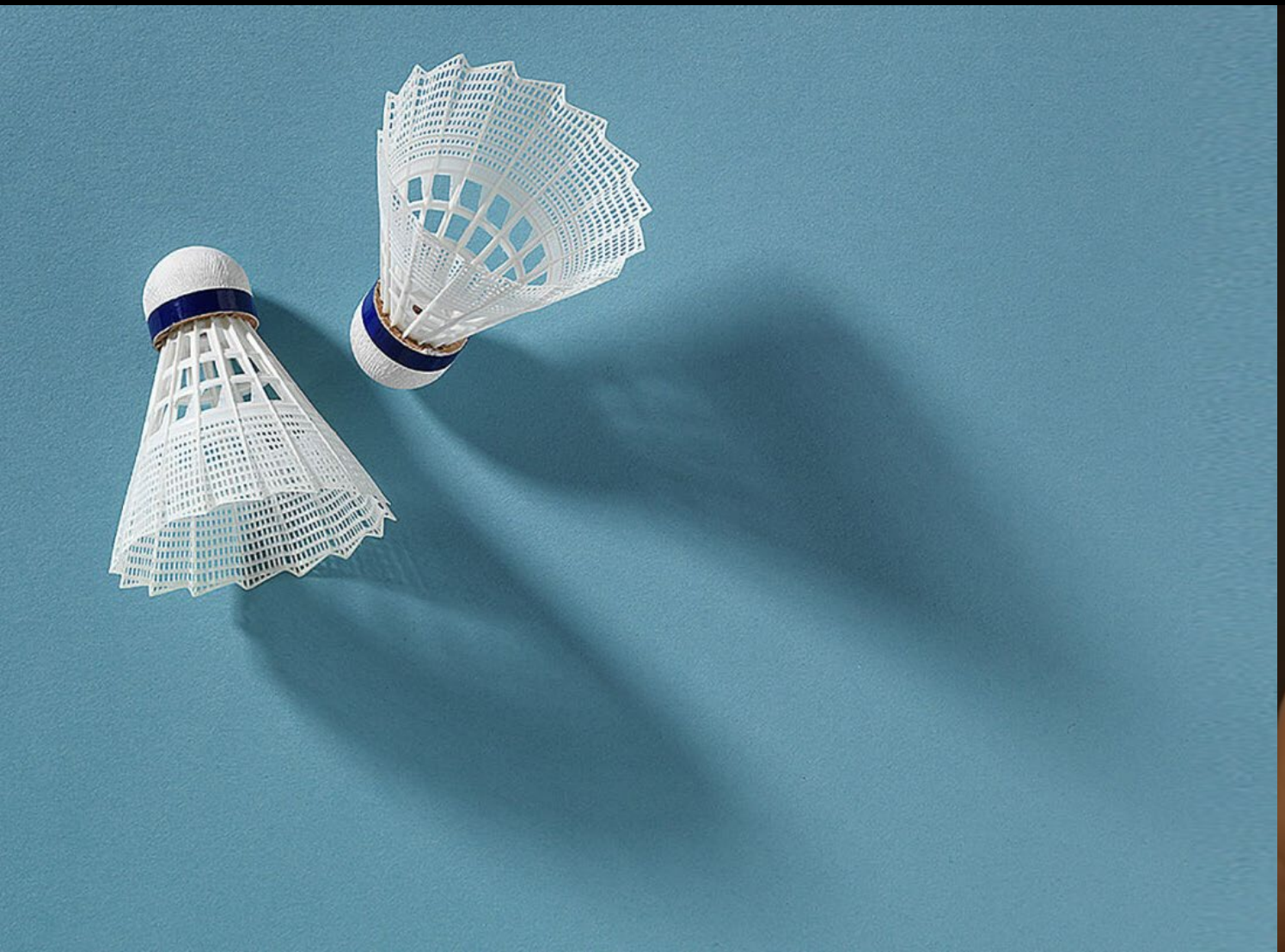
Looking at the light of a point light source, we will see very clearly defined shadows. On a background or underground there is either light or shadow, but nothing in between, no gradations. Even the finest details provoke a clear shadow. The structure of any object (e.g., textile, skin) is pointed out very clearly.



https://broncolor.swiss/news/hard-soft-and-diffused-light-what-is-the-difference

Soft Light

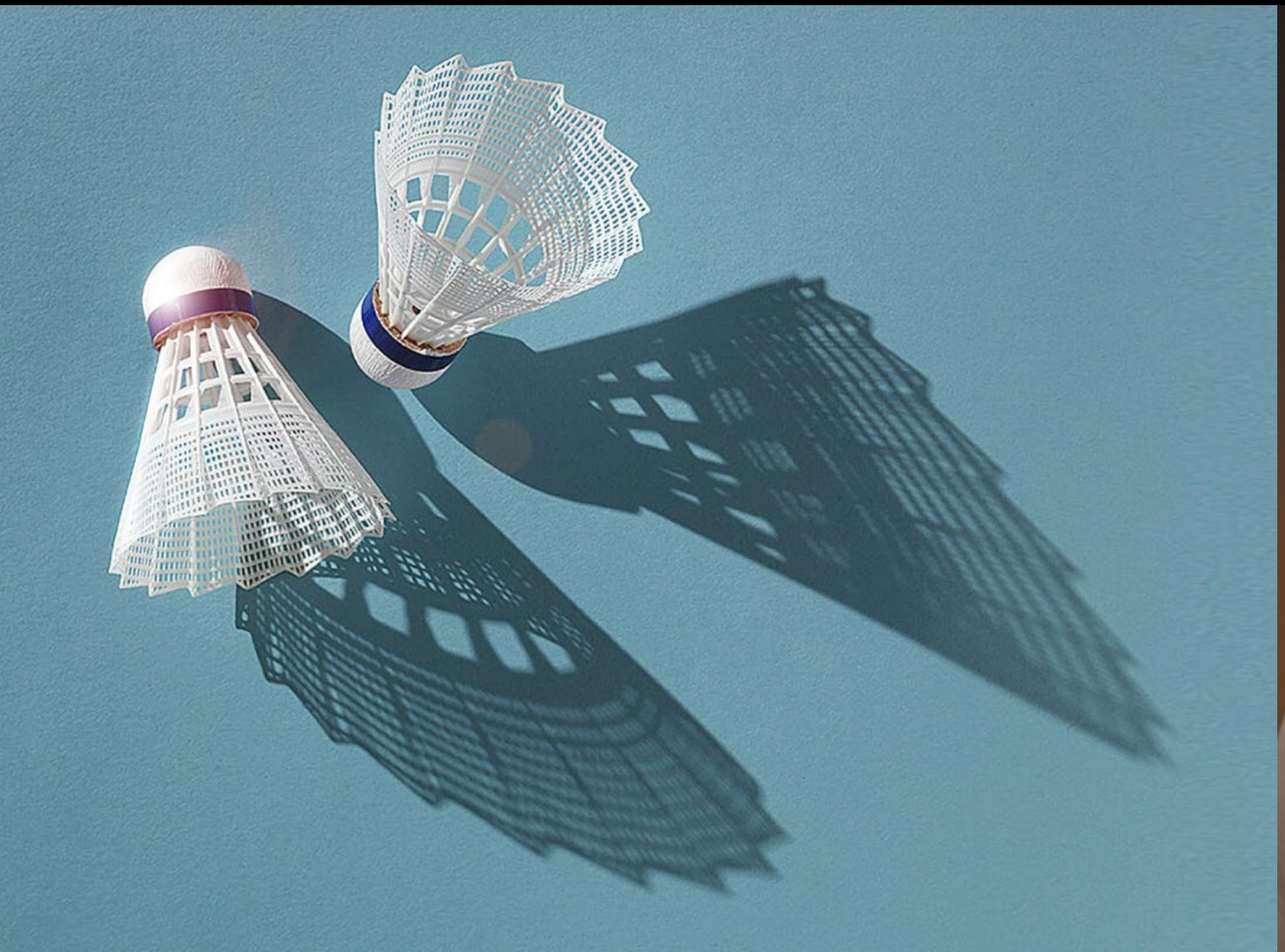
Average soft light sources have about the same sizes as the objects or set-ups they illuminate. Big parts of these shadows show gradations, and small core shadows still exist. Small and fine details, however, do not appear in the shadow. The texture of our object is now shown in lower contrast and is therefore not as clear as in hard light.



https://broncolor.swiss/news/hard-soft-and-diffused-light-what-is-the-difference

Specular Light

Specular light is a light that retains its reflective qualities. When this light hits a subject, the reflective light bounces back into the camera. A specular highlight is a bright spot of light that appears on shiny objects when illuminated. As with a normal reflection, the angle of incidence is equal to the angle of reflection. It is often seen on a curved surface as a spot.



https://broncolor.swiss/news/hard-soft-and-diffused-light-what-is-the-difference

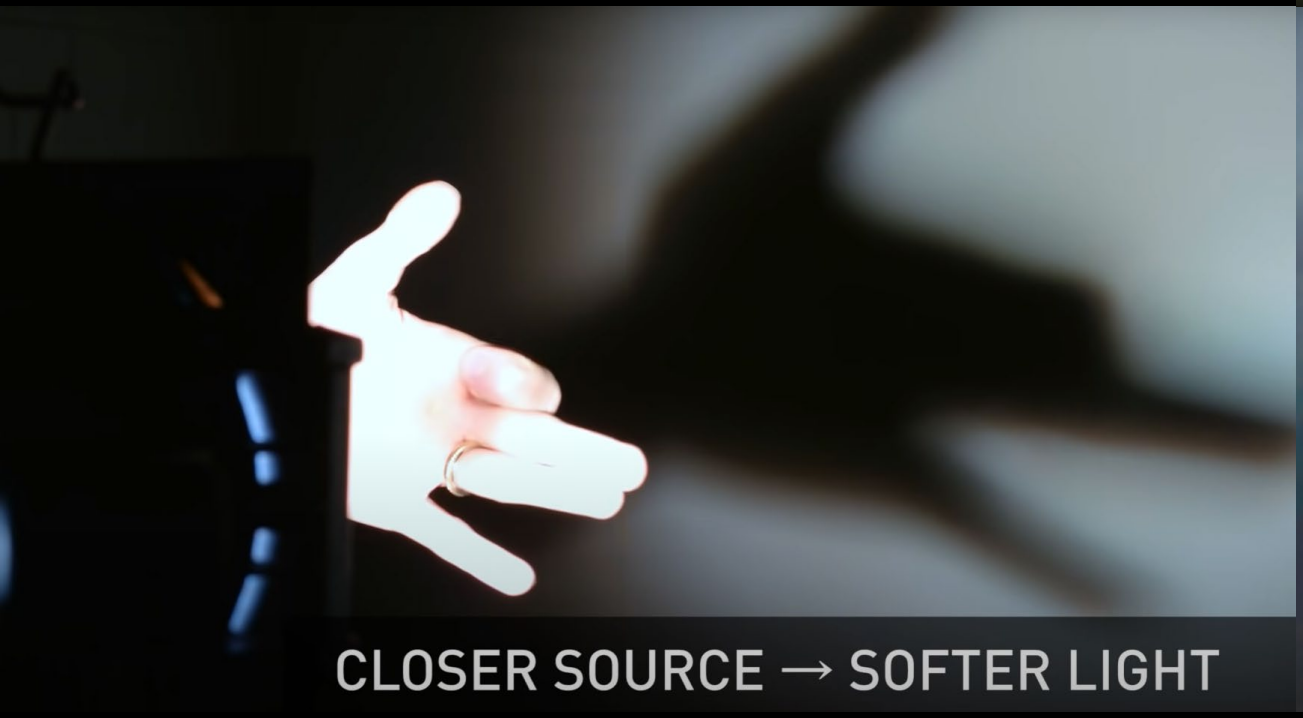
Diffuse Light

Now the light source is huge. Shadows no longer exist as the light is big enough to shine all around the object or model. The light does not show any direction anymore and the only contrast remaining in the photograph is the contrast of the object itself. The structure of the object's surface is as flat as possible, almost invisible and the color saturation is heavily reduced.

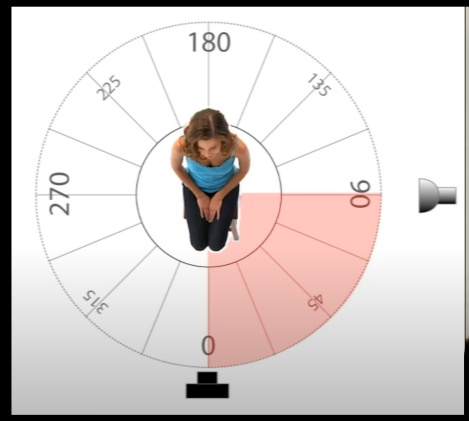
Soft Light vs. Hard Light

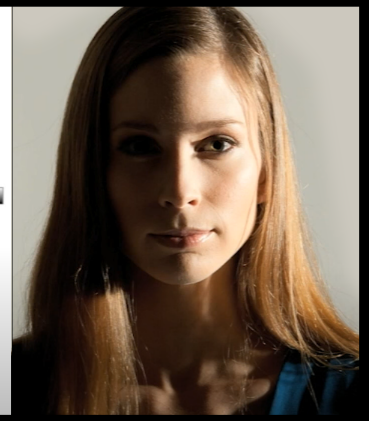
A smaller light will create hard lighting, whereas a larger light will result in soft lighting. Also, the **distance to the camera will influence both:** the closer a source is to the camera, the less focused and softer the light will appear; conversely, the further the subject is from the camera, the sharper and harder the light will appear.

https://www.studiobinder.com/blog/basics-of-film-lighting-techniques/

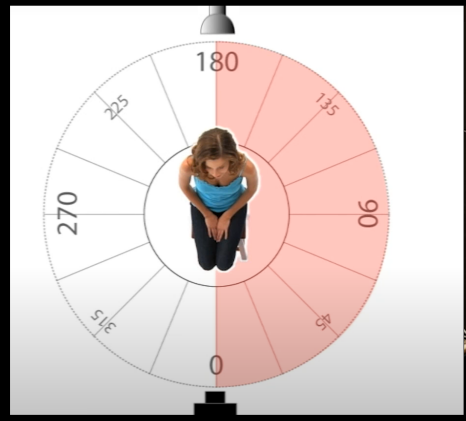


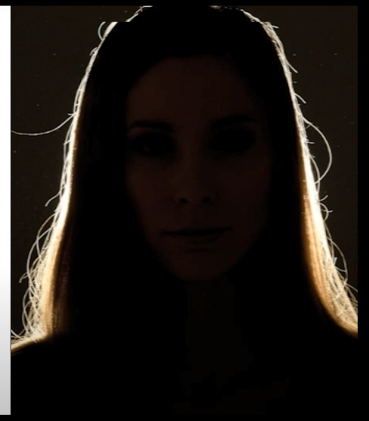
Front Light





Side Light





Back Light

Low Light

Medium Light

High Light

Lighting can change your appearance

The position of light is observed in relation to the position of our camera. In this regard, we distinguish **five types of light: front light, side light, backlight, top light, and bottom light.**

We can change the light moving it in relation to the camera, but also by moving the camera closer or further away from the light. Backlighting can give a character an angelic halo effect; conversely, **under-lighting** (or 'bottom' or 'low light' or 'monster light') can create a sinister appearance on a character**. Side lighting** is for illuminating your scene from the side, parallel to your subject. It is often used on its own or with just a faint fill light to give your scene a dramatic mood or what's referred to as **"chiaroscuro"** lighting. **Top lighting** is when the source of light is above the object being shot, such as the sun or a spotlight. The sun can be a great motivated light source, but it can also create harsh shadows on the character.

ttps://www.diyphotography.net/here-is-how-the-position-of-light-changes-your-portraits/ https://www.popphoto.com/gallery/top-10-photography-lighting-facts-you-should-know/

Angles of Light and Psychology

The full-face masks worn by skilled actors in Japanese Noh drama can induce a variety of perceived expressions with changes in head orientation. Rotation of the head out of the visual plane changes the two-dimensional image characteristics of the mask which viewers may misinterpret as non-rigid changes due facial muscle action. **Different expressions are created when the neutral mask is held at different angles to the light.** For instance, when the mask is held slightly upward, it will catch more light and give the appearance of smiling.

Likewise, when we take a **neutral facial expression** from a human actor, emotions can appear to shift with the angle of the light. This can be augmented by shifting the face in relation to the light as well.

http://www.historyofmasks.net/famous-masks/noh-mask/

LIGHTING TESTS, MAORI WARRIOR SERIES:

PORTRAIT OF MAORI WARRIOR, **HARD LIGHT,** HIGH KEY LIGHT, LOW FILL LIGHT, FACING VIEWER --AR 2:1 **[MIDJOURNEY 5.2]**
PORTRAIT OF MAORI WARRIOR, **SOFT LIGHT,** LOW KEY LIGHT, MEDIUM FILL LIGHT, FACING VIEWER --AR 2:1 **[MIDJOURNEY 5.2]**
PORTRAIT OF MAORI WARRIOR, **DIFFUSE LIGHT,** EVEN SIDE LIGHT, SOFT LIGHT, LOW KEY LIGHT, HIGH FILL LIGHT, FACING VIEWER --AR 2:1 **[MIDJOURNEY 5.2]**

Hard Light

Soft Light

Diffuse Light

LIGHTING TESTS, MAORI WARRIOR SERIES:

PORTRAIT OF MAORI WARRIOR, **BACK LIGHTING**, HARD RIM LIGHT, NO FILL LIGHT, CONTRE-JOUR, CHIAROSCURO, BRIGHT RIM LIGHT, HALO, PENUMBRA LIGHTING, BLOOM, FACING VIEWER --AR 2:3 **[MIDJOURNEY 5.2]**
PORTRAIT OF MAORI WARRIOR, LIT FROM BENEATH CHIN, **MONSTER LIGHTING**, HEAD FACING OVER TORCH, HARD LIGHT, HIGH KEY LIGHT, LOW FILL LIGHT, **LIGHT SOURCE FROM BELOW,** FACING VIEWER --AR 2:1 **[MIDJOURNEY 5.2]**
PORTRAIT OF MAORI WARRIOR, **OVERHEAD SPOTLIGHT,** NO FILL LIGHT, FACE OBSCURED IN SHADOWS, BLOOM, FACING VIEWER --AR 2:3 **[MIDJOURNEY 5.2]**

Back Light

Bottom Light

Top Light

SIDE LIGHTING TESTS, MAORI WARRIOR SERIES:

PORTRAIT OF MAORI WARRIOR, **REMBRANDT LIGHTING,** HOLDING TORCH BESIDE FACE, FACING VIEWER --AR 2:1 **[MIDJOURNEY 5.2]**
PORTRAIT OF MAORI WARRIOR, **BRIGHT RIM LIGHT ON LEFT SIDE**, KICKER LIGHT, LOW FILL LIGHT, HIGH KEY LIGHT, FACING VIEWER --AR 2:1 **[MIDJOURNEY 5.2]**
PORTRAIT OF MAORI WARRIOR, **SPLIT LIGHTING,** HARD LIGHT, HIGH KEY LIGHT, LOW FILL LIGHT, FACING VIEWER --AR 2:1 **[MIDJOURNEY 5.2]**

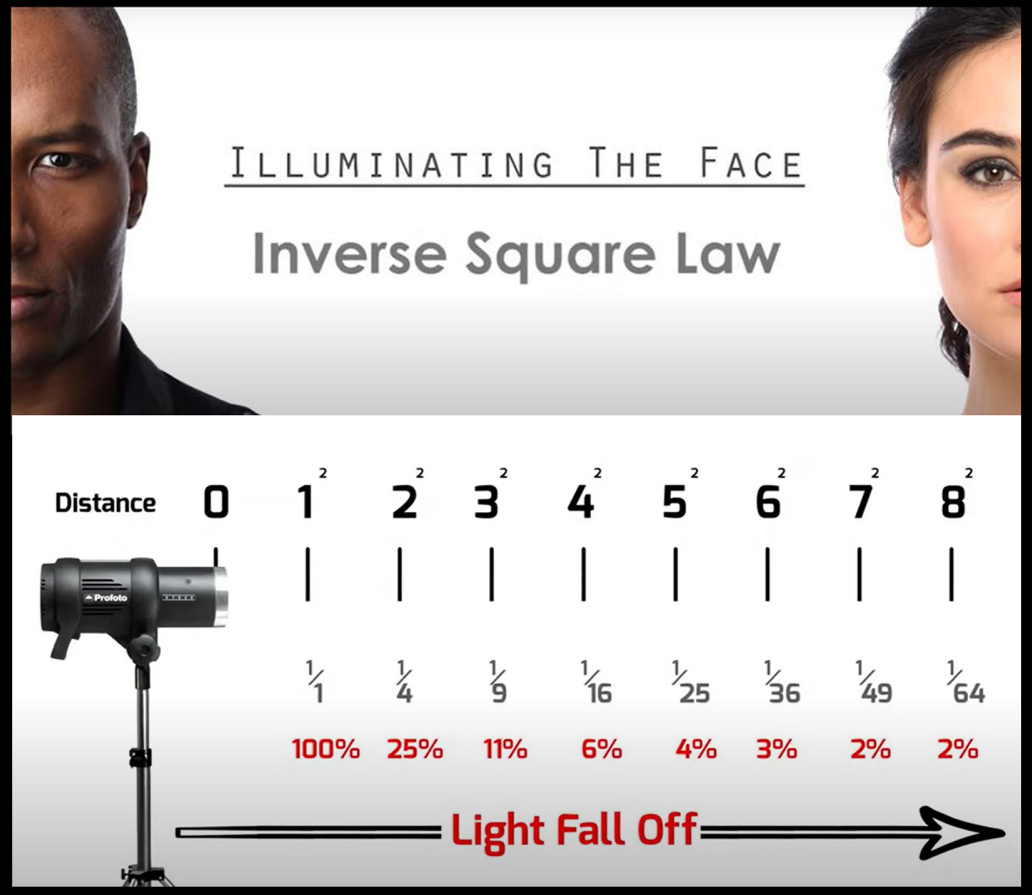
Rembrandt Lighting

Rim Light + Butterfly Lighting

Split Lighting

What is fall off and the inverse square law?

The quantity of light refers to how much light your source creates. Typically the output of the light source is the first decision made when selecting a light. Choosing the quantity of light depends on many factors. How much power can you use without blowing a fuse? How far is the light from the subject? Where is the scene set? What is the mood of the scene? Is there a motivated source for the light in the story-world? A concept in both photography lighting and cinematography lighting is **the inverse square law**, which, in photography lighting, measures the amount of **"fall off."** As the light source gets further away from the subject, the characteristics of light change. **Watch Peter Hurley's brilliant explanation of the inverse square law here:** ***https://youtu.be/xO-J42VM448***



https://www.studiobinder.com/blog/basics-of-film-lighting-techniques/

FALLOFF, MAORI WARRIOR TESTS:

MIDJOURNEY DOES NOT RECOGNIZE DISTANCE FROM A LIGHT SOURCE, NOR DOES IT UNDERSTAND KELVIN DEGREES RELATIVE TO BRIGHTNESS AND COLOR. HOWEVER, **WITH DESCRIPTORS SUCH AS 'NO FILL LIGHT', 'MEDIUM FILL LIGHT', 'CHIAROSCURO', 'EVEN LIGHTING', ETC., YOU CAN APPROXIMATE LEVELS OF FALL OFF THAT EMULATE VARIOUS DISTANCES FROM A LIGHT SOURCE.** BE PREPARED FOR NUMEROUS REROLLS TO FIND THE DESIRED RESULT.



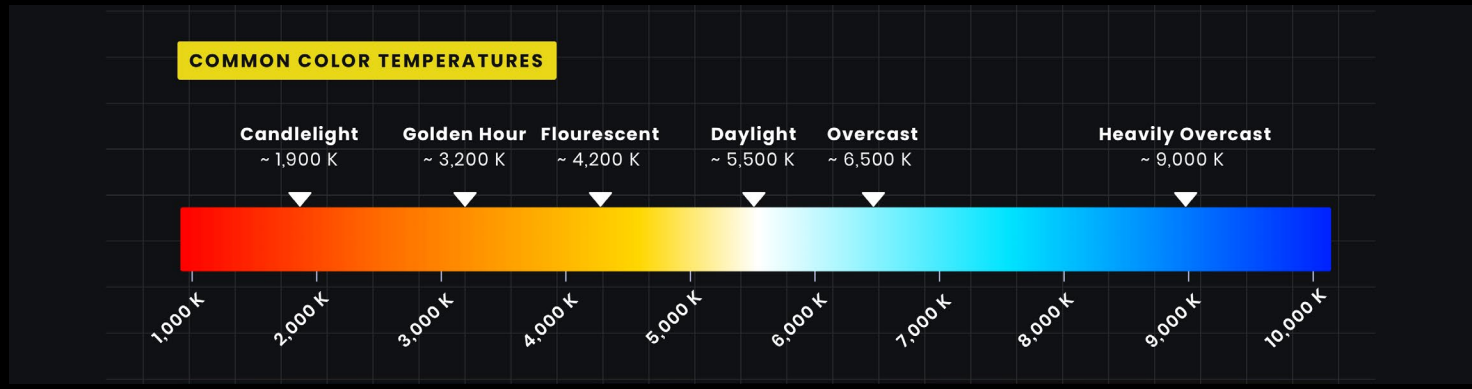

MAORI WARRIOR IN FRONT OF BRIGHT KLIEG LIGHT, **HIGH CONTRAST KEY LIGHT, NO FILL LIGHT, CHIAROSCURO,** PROFILE VIEW --AR 2:1 **[MIDJOURNEY 5.2]**

MAORI WARRIOR IN FRONT OF BRIGHT KLIEG LIGHT, **HIGH CONTRAST KEY LIGHT, MEDIUM FILL LIGHT, BLOOM,** PROFILE VIEW --AR 2:1 **[MIDJOURNEY 5.2]**

MAORI WARRIOR IN FRONT OF BRIGHT KLIEG LIGHT, **KEY LIGHT, STRONG FILL LIGHT, EVEN LIGHTING, BLOOM,** PROFILE VIEW --AR 2:1 **[MIDJOURNEY 5.2]**

MAORI WARRIOR IN FRONT OF BRIGHT KLIEG LIGHT, **MEDIUM KEY LIGHT, STRONG FILL LIGHT, EVEN LIGHTING,** PROFILE VIEW--AR 2:1 **[MIDJOURNEY 5.2]**

What is color temperature and how is it measured?



As described previously in the module on color, **color temperature** is generally understood as **the color of light**. But what is it, technically speaking? Color temperature is the temperature at which a black body — an object that fully absorbs all frequencies of light — would emit radiation of the same color as any given object.

Understanding color temperature means understanding how various light sources fall on the Kelvin temperature spectrum. The **Kelvin** is the base unit of thermodynamic temperature. Take a look at this color temperature chart to learn the different Kelvin values the most common types of light sources have.

In this color temperature chart, you might find it a bit confusing that higher Kelvin values are cooler color tones. An easy trick to remember and understand this is that blue flames are technically hotter than yellow flames, meaning they have a higher temperature. Thus, higher Kelvin color temperatures are cooler (bluer) colors.

https://www.studiobinder.com/blog/what-is-color-temperature-definition/

1000 K

9000 K

Common light sources measured in Kelvins

1700 K: Match light
1850 K: Candle light
2000 K or less: Low light
2800 K: Tungsten (incandescent) light
3000 k: Halogen + yellow fluorescent light
3350 K: Studio "CP" light
3400 K: Floodlight
3800 K: Klieg light
4100 K: Moonlight
5000 K: Sunlight
5500 K: Average daylight, electronic flash
5770 K: Effective solar temperature
6420 K: Xenon arc lamp
6500 K: The most common white light


Candle Light

Low Light

Flood Light


Klieg Light


Moonlight


Sunlight

White balance is a setting in digital cameras that determines which Kelvin temperature will appear true white. This is important for capturing colors and light sources as they truly are or how you desire.

https://medium.com/the-coffeelicious/a-photographers-guide-to-color-temperature-6bbc882d1524

COLOR TEMPERATURE TESTS, TOM CRUISE:

TOM CRUISE ON A **SUNNY DAY**, WARM RIM LIGHT, LOW KEY LIGHT, BACKLIT, VAPORWAVE, MOVIE COMPOSITION, CINEMATIC COLOR SCHEME, DRAMATIC LIGHTING, 135MM LENS --AR 3:2 --SEED 1032173681 **[MIDJOURNEY 5.1]**
TOM CRUISE ON A RAINY NIGHT, REFLECTIVE, RAY TRACING, BLADE RUNNER, BLUE KEY LIGHT, PURPLE FILL LIGHT, BACKLIT, VAPORWAVE, MOVIE COMPOSITION, DRAMATIC LIGHTING, **MOONLIGHT**, 135MM LENS --SEED 1032173681 **[MIDJOURNEY 5.1]**
TOM CRUISE IN A **CANDLELIT ROOM**, ORANGE PALETTE, WARM RIM LIGHT, WARM FILL, WARM LOW KEY LIGHT, BACKLIT, VAPORWAVE, STARING AT VIEWER, MONOCHROMATIC, 135MM LENS --AR 3:2 --SEED 1032173681 **[MIDJOURNEY 5.1]**

Daylight: 10000 K

Moonlight: 4100 K

Candlelight: 2000 K

Most generative art programs do not understand Kelvin degrees, but you can use descriptors to approximate the desired temperature.

Color of Light and Psychology

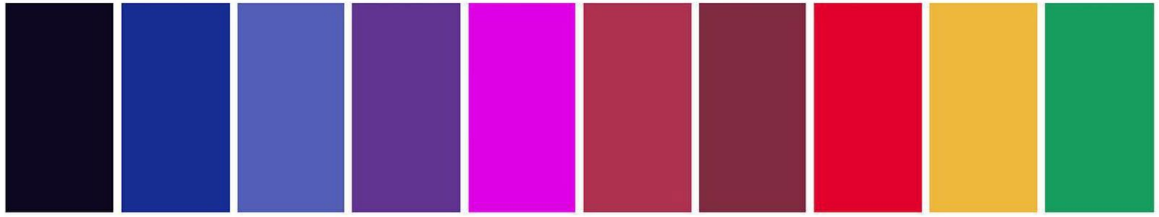
https://flickside.com/color-psychology-in-movies

As covered in our last module, **color psychology** is the study of how certain colors impact human behavior. Different colors have different meanings, connotations, and psychological effects that vary across different cultures. Along with cultural differences, color psychology is largely impacted by personal preference. Color psychology involves the use of color theory—the practical application of mixing and matching various hues—to explore concepts like color perception and the effect of color combinations. Color psychology in films is the exploration of the world of images and how it affects human perception. It reflects the underlying emotional undercurrents that run beneath the surface of the narrative. The colors used in films are also designed to enhance or define the characters and their dramatic needs. Some directors like Wes Anderson have embraced the entire spectrum of color, making their work a visual treat and an easily recognizable trademark while others like Fincher depict their work in grittier tones. The absence of color is an equally capable mechanism employed to convey different emotions. Memento, for example, employs a black and white color to communicate a separate timeline while Schindler's List uses no color on screen.

Kubrick and Lighting for Eyes Wide Shut

https://moviesincolor.com/archive
https://aquariumdrunkard.com/2021/12/16/videodrome-eyes-wide-shut-kubricks-christmas-film/

From the Shining to Eyes Wide Shut, Kubrick's movies use color as a unique means of advancing narrative. Steven Spielberg once referred to Kubrick's work not as films, but as "environmental experiences that get more intense the more you watch them." In Eyes Wide Shut, the look of Christmas permeates the entirety of the film. Cinematographer Larry Smith (who first worked with Kubrick as a gaffer on Barry Lyndon (1975) lit the film primarily with practical light sources such as Christmas tree lights, per Kubrick's request. The film is hazy, glowing red and green, enhanced by the push processing of the 35mm film to intensify the saturation. As with the Shining, the color choices are gravid with meaning and help forward the narrative.



What is three point lighting?

Ephrata Variations VIII• 5520 x 3303 • Seattle, WA • 2.16.2015 •
f/3.2 • 1/160 sec • 1250 ISO • 50 mm • Nikon D800 • Jazno Francoeur

Three point lighting is a cinematography technique that uses three different light sources placed at various distances and angles around a subject to properly light them for the screen. Each light source serves a different purpose in casting and correcting shadows on your subject. The three light sources used in this setup are:

- **Key light:** This primary light makes up about 3/4 of the light on a subject. **It is the exposure.**
- **Fill light:** This secondary light is meant to fill the remaining unlit space to bring out further detail of the subject. **It is often a motivated light.**
- **Back light:** Sometimes referred to as a **rim light or hair light**, this final light in the three-point setup is meant to define the outline of the subject to emphasize three-dimensionality.

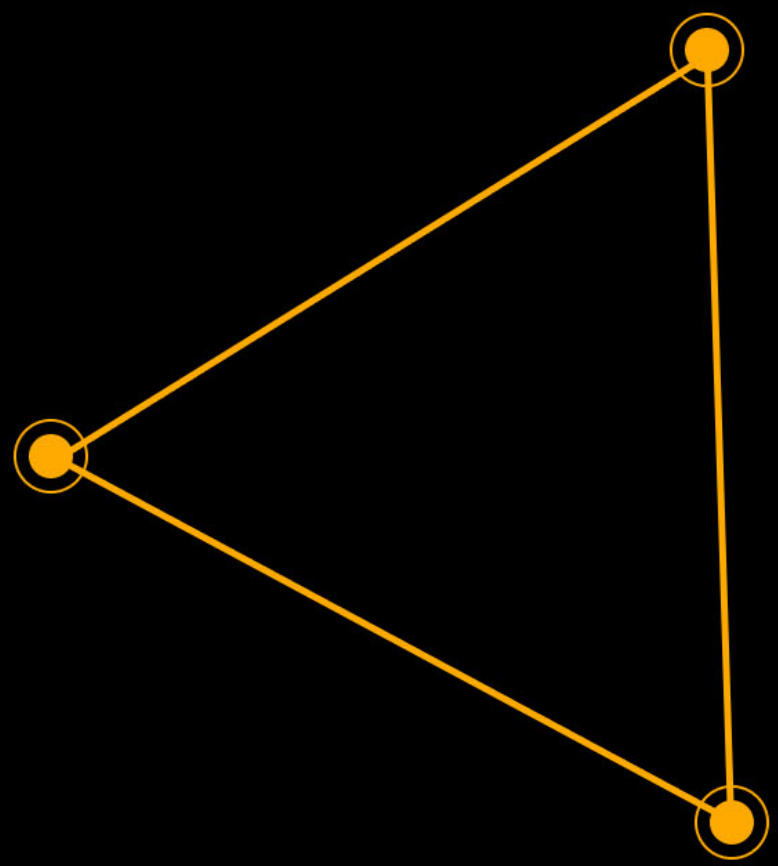
When considering your three point lighting setup, consider the following:

- **Source of light** — the physical origin
- **Angle of light** — the path of approach
- **Intensity of light** — the amount/brightness

https://www.nfi.edu/3-point-lighting/

THE THREE POINT LIGHTING SYSTEM

 Watch the video here: https://wolfcrow.com/what-is-three-point-lighting-and-why-do-we-use-it/



BACKLIGHT

RIM
HIGHLIGHTS
HAIR

MOTIVATED LIGHT

SLASH/KICKER
RIM
FILL
EYE LIGHT
CATCHLIGHT

KEY LIGHT

EXPOSURE


https://www.studiobinder.com/blog/three-point-lighting-setup/
BACK LIGHT
or HAIR LIGHT
Used to extract
third dimension
KEY LIGHT
Used as primary
lighting point
FILL LIGHT
Used to fill
opposite
key light

What is motivated lighting?

Motivated lighting is when a light source on-screen justifies additional lighting of the same direction and color temperature. In other words, it is lighting that has a logical reason for appearing the way it does in a shot. It's easier to explain motivated lighting with an example. Take a look at this shot from George Miller's Three Thousand Years Of Longing.

There's a lot of lighting going on here, with a variety of sources and textures. There's two prominently featured practical lights, the lamps which are on either side of Alithea. The right lamp provides some edge light on her back, and the left provides a diffused red glow on her face – or so it seems. It's likely that the red lamp, while providing motivation for a warm light on Alithea's face, is not actually the light providing it. That's probably a much less aesthetically pleasing light off frame.

Then, of course, there's the harsh blue spotlight shining down on the object of Alithea's attention. Like the red light on her face, this light is likely created by a strong film light just off frame. But that's not how we view the light in the scene– we can safely assume that it is coming from the sun through a window in the bizarre. So this light, too, is motivated.

https://www.studiobinder.com/blog/film-lighting/

THREE POINT LIGHTING, NEPALESE PORTRAIT SERIES:

70-YEAR-OLD NEPALESE SHERPA LOOKING AT CAMERA, PERIOD DRESS, **ORANGE KEY LIGHT, BLUE FILL LIGHT, WHITE BACK LIGHT, THREE POINT LIGHTING,** 35 MM ANAMORPHIC FILM GRAIN, GRITTY JOURNALISTIC PHOTO, NEUTRAL BACKGROUND --AR 3:1 --STYLE RAW **[MIDJOURNEY 5.2]**

THREE POINT LIGHTING, THE LAKHIYANA:

PREETI DHATA LOOKING HORRIFIED FROM THE SIDE OUT OF HER FUTURISTIC SPACE HELMET, ELLIPTICAL LENS FLARE, HORROR MOVIE, REMBRANDT LIGHTING, SUBSURFACE SCATTERING, **BLUE KEY LIGHT, ORANGE FILL LIGHT**, RIDLEY SCOTT'S ALIEN, 85MM, **WHITE BACK-LIGHTING**, SMALL-CATCHLIGHT --AR 3:2
[MIDJOURNEY 4]

What is key light?

Key light is the primary light source for your scene, **the master exposure.** The strength, color, and angle of your key light is a determining factor to a cinematographer's lighting design. The key light is most often placed in front of your subject, at an angle, and thus illuminates one section of your subject. Whether or not the scene utilizes low-key, medium-key, or high-key lighting is based on the use of fill lights to expose a subject's shadow side or side not exposed by the key light.

Methods to Manipulate a Key Light:

- Diffuse the light for softer lighting
- Bounce the light off a wall or bounce board to create a softer light spread
- Moving the light further from a subject will create harsh shadows
- Adjust the angle of the light to achieve different looks

https://www.studiobinder.com/blog/what-is-key-light-definition/

Vanya in Repose • 36 x 27 • Seattle, Washington, USA • 12.6.2005 • f/3.2 • 1/8 sec • 100 ISO • 9.1 mm • Sony DSC-V1 • Jazno Francoeur

KEY LIGHT, PARLE DOUCEMENT:

1923 MOVIE ABOUT TAYLOR SWIFT AND CHRIS PRATT DANCING WILDLY AND LAUGHING WITH CHRIS PRATT. DUTCH ANGLE, **WARM KEY LIGHT**, FORCED PERSPECTIVE, DRAMATIC ANGLE, TECHNICOLOR, 35MM ANAMORPHIC ANALOG, STYLE OF SINGIN' IN THE RAIN --AR 2:1 **[MIDJOURNEY 5]**

HIGH KEY LIGHT, PARLE DOUCEMENT:

923 MOVIE ABOUT TAYLOR SWIFT IN FLAPPER GEAR DANCING WILDLY AND LAUGHING WITH CHRIS PRATT. DUTCH ANGLE, **HIGH KEY LIGHT,** FORCED PERSPECTIVE, DRAMATIC ANGLE, TECHNICOLOR, 35MM ANAMORPHIC ANALOG, STYLE OF SINGIN IN THE RAIN --AR 2:1 **[MIDJOURNEY 5]**

LOW KEY LIGHT, PARLE DOUCEMENT:

STEFANO ACCORSI AS A NARCISSIST JOURNALIST IN A 1923 ROMANTIC MOVIE, SMOKE-FILLED NEWSROOM, **LOW KEY LIGHT**, EXTREME CLOSE-UP, BLUE FILL LIGHT, DRAMATIC ANGLE, STYLE OF SCHINDLER'S LIST AND ROGER DEAKINS --AR 2:1 **[MIDJOURNEY 5]**

What is fill light?

A **fill light** is responsible for exposing the details of a subject that fall in the shadows of the key light. It is the secondary light in the traditional three point lighting setup. The fill light is typically positioned opposite of the key light to literally fill in the shadows that the key light creates. The strength of the fill in is a determining factor to the lighting style and mood of a shot. How a cinematographer uses fill determines the shadows, contrast, and brightness of a scene.

What does a fill light do?

- Determines contrast ratio
- Creates depth and dimension
- Produces a more even lighting style
- Brings out the details and shapes of a subject

https://www.studiobinder.com/blog/what-is-fill-light-photography-definition/

Pretty Parlor • 4716 x 4912 • Seattle, Washington, USA • 12.5.2014 • f/4 • 1/125 sec • 1600 ISO • 50 mm • Nikon D800• Jazno Francoeur

What is fill light?

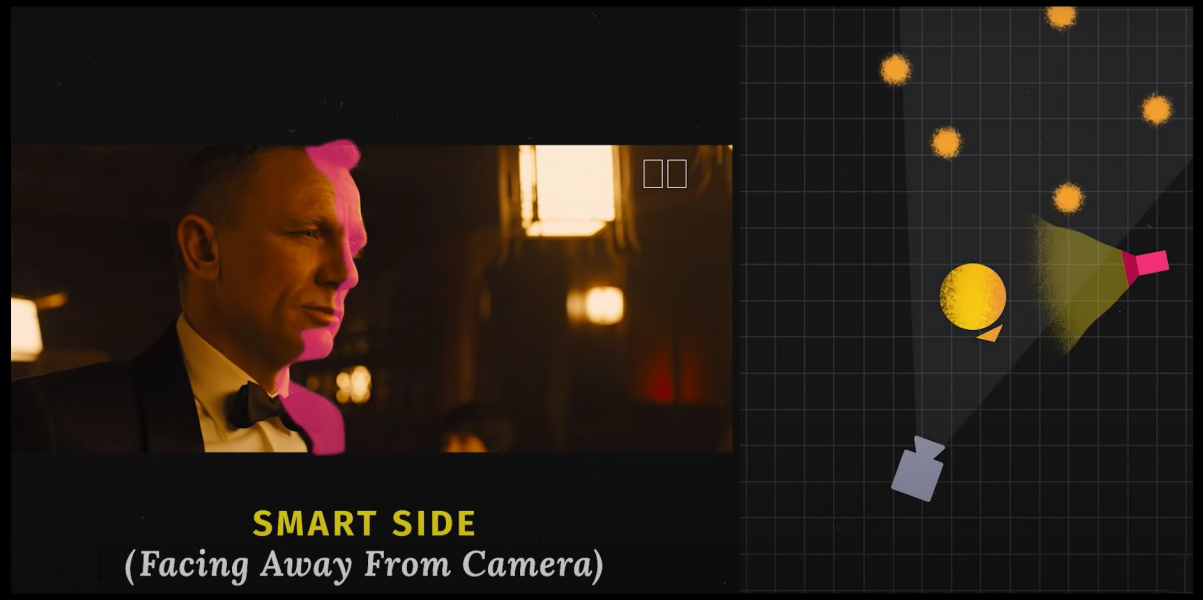
Among all of the film lighting techniques, **the amount of fill is one of the determining factors to the mood of any lighting setup**. The best cinematographers in the world have a masterful understanding of how it affects the visual style of a scene.

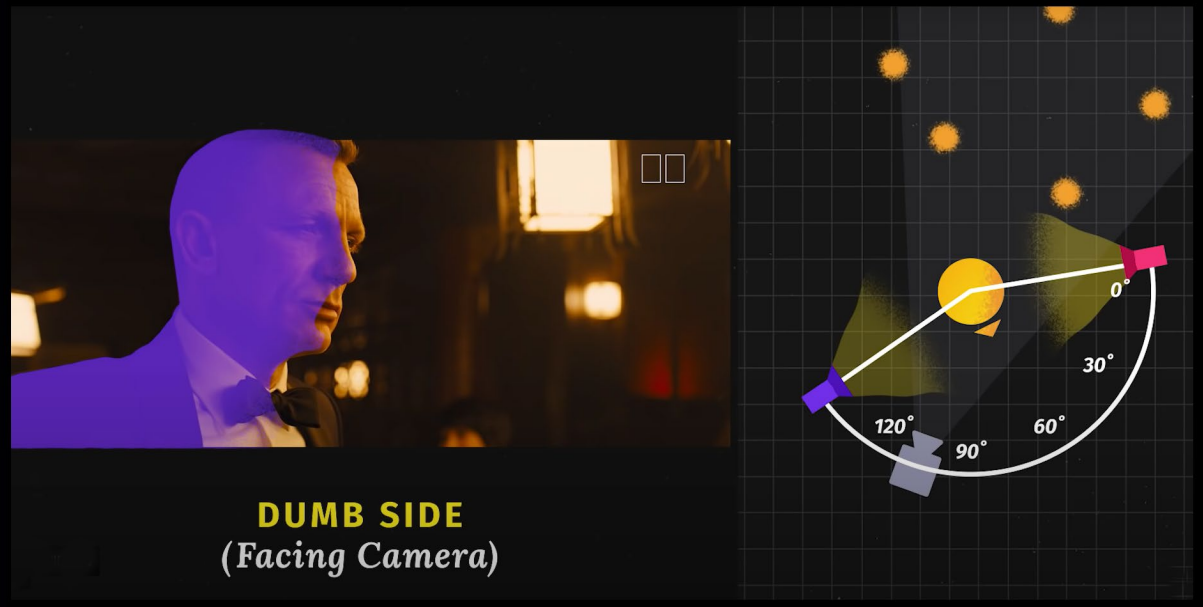
What is fill light's role in the traditional three point lighting setup? It determines depth, contrast, and shadows; it is usually measured as a ratio comparing key light vs. fill light. These light ratios determine the overall style and mood of a shot. For example, a 2:1 light ratio favoring the key light vs. fill light results in a softer lighting style with minimal shadows and less contrast. This is a typical light ratio used in high-key lighting to create a cheerful and upbeat mood in a scene. A more drastic lighting ratio, such as 8:1, has the complete opposite effect.

https://www.studiobinder.com/blog/what-is-fill-light-photography-definition/

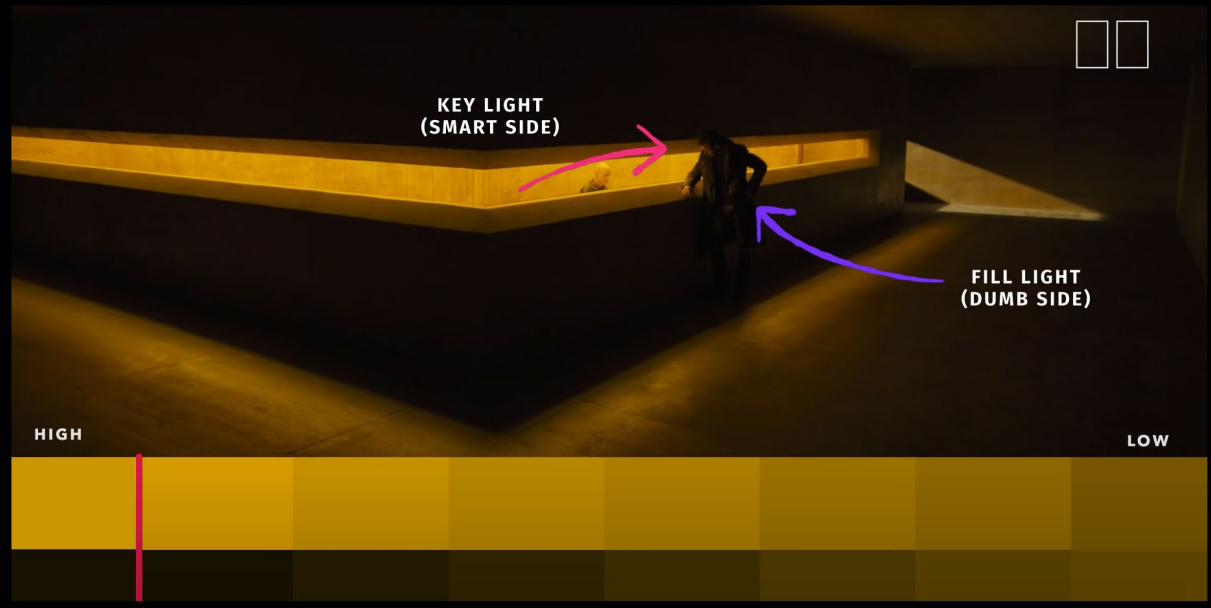
Reclining Buddha I • 14.3 x 9.5 •
Wat Pho, Bangkok, Thailand •
3.10.2010 • f/4 • 1/30 sec •
450 ISO • 17 mm • Nikon D300 •
Jazno Francoeur

Angle: the relationship of key to fill





Ratio: how much fill should be used?



FILL LIGHT, EXPOSURE TRIANGLE TEST:

TRIPTYCH OF HOLLYWOOD ACTOR AT THREE SEPARATE TIMES OF DAY, RED KEY LIGHT, **GREEN FILL LIGHT**, CLOSE-UP, EXTREME REALISM, LIFE-LIKE TEXTURES, KODAK AEROCHROME --AR 2:1 **[MIDJOURNEY 5.2]**

FILL LIGHT, SHINJUKU 2080:

RAINY NIGHT, REFLECTIVE, RAY TRACING, BLADE RUNNER, WEEPING ANDROID FEMALE WITH BUTOH TATTOO MAKEUP, **RED FILL LIGHT**, LOOKING DOWN, BLUE KEY LIGHT, BACKLIT, DRAMATIC LIGHTING, MOVIE COMPOSITION, CINEMATIC COLOR SCHEME, MOONLIGHT, EXTREME CLOSE-UP, 135MM **[MIDJOURNEY 4]**

FILL LIGHT, SHINJUKU 2080:

ANDROID MALE GHOST WITH BUTOH TATTOOS AND DAY OF THE DEAD MAKEUP ON A RAINY NIGHT, REFLECTIVE, RAY TRACING, BLADE RUNNER, BLUE KEY LIGHT, **PURPLE FILL LIGHT**, BACKLIT, VAPORWAVE, MOVIE COMPOSITION, DRAMATIC LIGHTING, MOONLIGHT, 135MM LENS **[MIDJOURNEY 4]**

FILL LIGHT, THE LAKHIYANA:

FUTURISTIC VIKING SPACE SHIP HOVERING OVER BURNING LAVA PLANET, STYLE OF BLOMKAMP + H.R. GIGER, BLUE RIM LIGHT, **WARM FILL LIGHT**, RESEMBLES A CATAPHRACT, 85MM, SHARP-FOCUS, STYLE OF ZAHA HADID AND SYD MEAD, CARL ZEISS LENS --AR 2:1 **[MIDJOURNEY 4]**

What is back light?

Backlight is light that hits an actor or subject from behind, typically higher than the subject it is exposing. Backlighting an object or actor from the background creates more depth and shape to a subject.

Back lighting is a main component of the traditional three-point-lighting technique and is what makes a frame feel three-dimensional rather than flat. When a backlight hits a subject at an angle it is referred to as a kicker or rim light.

What is backlight photography used for?

- Creates depth
- Defines shapes
- Reduce flatness of an image
- Increases dramatic effect
- Separates a subject from the background

https://www.studiobinder.com/blog/what-is-key-light-definition/

Dhammajarik II • 6.8 x 9.5 • Kanchanaburi, Thailand • 11.26.2016 • f/5.6 • 1/200 sec • 1600 ISO • 130 mm • Nikon D300 • Jazno Francoeur

BACK LIGHT, THE LAKHIYANA:

A SERIES OF BOLTS LEADING TO THE HEAVENS LIKE BURNING LADDERS, SILHOUETTES OF A MAN RESEMBLING BOLLYWOOD VILLAIN MOGAMBO, WARP SPEED, ACID TRIP, BLUE KEY LIGHT, **BACK-LIGHTING**, SMALL-CATCHLIGHT --AR 3:2 **[MIDJOURNEY 4]**

BACK LIGHT (HAIR LIGHT), PARLE DOUCEMENT:

KIERNA SHIPKA AS A NARCISSIST FLAPPER STARING DIRECTLY IN MIRROR APPLYING MAKEUP IN A 1923 NEW YORK MOVIE, **DIFFUSE BACK-LIGHT**, BLUE KEY LIGHT, DRAMATIC ANGLE, STYLE OF SCHINDLER'S LIST AND ROGER DEAKINS --AR 2:1 **[MIDJOURNEY 5.2]**

What is a rim light?

A **rim light** is placed behind a subject that exposes the outline or rim of the subject with light. This lighting highlights the contours of a subject and creates a dramatic and mysterious effect. Rim lights can be used in a variety of ways. They can be used alone as a rim lighting setup to create a high contrast, stylized image. They can also be used in conjunction with other lighting setups such as the traditional three point lighting setup. When used in other lighting setups, these lights are often referred to as **hair lights** or **halo lighting**.

What is a rim light used for?

- Dramatic portraits
- Product photography
- Highlight a subject's shape and contours
- To separate the subject from the background

Because **rim lighting is a form of backlighting**, it's any light source that's used predominantly from behind the subject, but not necessarily directly behind as it helps to position it to the side. So, while it is backlighting, it's more than that, it's a combination of backlighting and side light.

https://thelenslounge.com/rim-light-photography
https://www.studiobinder.com/blog/what-is-a-rim-light-photography-definition

Night of the Hungry Ghost III • 14.3 x 9.5 • Singapore • 8.24.2010 • f/4.5 • 1/80 sec • 400 ISO • 40 mm • Nikon D300 • Jazno Francoeur

RIMLIGHTS, HAW PAR VILLA REMIX:

HTTPS://S.MJ.RUN/-EUTCJNI8VI LIGHTNING STORM AT MIDNIGHT, CERAMIC SCULPTURAL FIGURES, EXTREME FLASHES, HAW PAR VILLA, SQUIRRELS HUGGING, CHIAROSCURO, **BLUE RIMLIGHTS**, MOONLIGHT, CANON 5 --AR 2:1 **[MIDJOURNEY NIJI 5]**

RIMLIGHTS, THE LAKHIYANA:

EXPLORER IN A FUTURISTIC KATHAKALI SPACESUIT WITH TRON FLOURISHES FLYING THROUGH A SHIMMERING NEBULA THROUGH A BEAM OF WARP SPEED LIGHT, OSCILLATING CHLADNI + SANSKRIT HOLOGRAMS REFLECTED IN HELMET, RAY TRACING, STYLE OF STARGATE SEQUENCE FROM 2001, 85MM, OPTIMIZED PHOTON CAPTURE, COOL RIMLIGHTS, DIFFUSE-BACK-LIGHTING --AR 2:3 **[MIDJOURNEY 5]**

What is bounce light?

Bounce light is a lighting technique in which the light from a strong light source is literally bounced off of a bounce board, reflector, or other light-colored surface. A light that is bounced causes a bigger spread of light than its original source. It can also diffuse the light onto a subject.

Bounce lighting is commonly integrated into many lighting techniques. Its ability to create soft light or diffused light makes it a great tool for all filmmakers.

What can be used to create bounce lighting in film?

- Bounce card
- Reflector board
- Walls and ceilings
- Clothing/fabric

https://www.studiobinder.com/blog/what-is-bounce-light-photography/

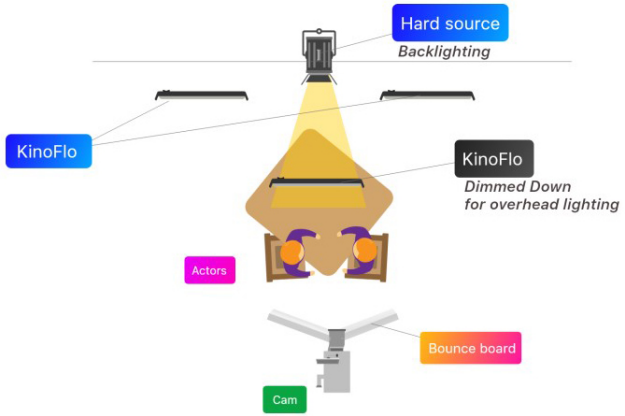
Orchard Road Model Shoot I • 7.64 x 5.1 • Orchard Road, Singapore • 6.11.2011 • f/4.5 • 1/500 sec • 1600 ISO • 48 mm • Nikon D300 • Jazno Francoeur

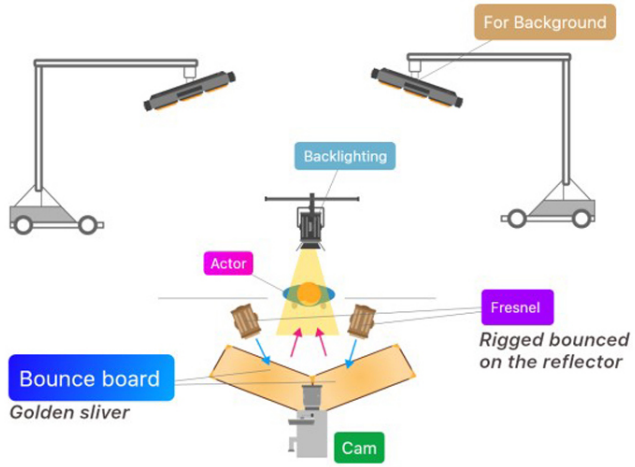
Bounce light rigs

Robert Richardson makes bounce light an aesthetic

Robert Richardson, Quentin Tarantino's longtime cinematographer, uses bounce cards in wider shots, as well as props like tables (and even other characters' wardrobes) to bounce the spill from the backlight back onto the talent. With a room that you can pre-rig with a dozen such lights; lighting each shot is just a matter of choosing which lights to dim and where to place the appropriate bounce objects.

Regarding the opening sequence to Inglourious Basterds, Richardson explains that he avoided a "source-y" approach to the scene (i.e., having the main source come through the windows) in part because this "would have put a lot more light on the background. Here you feel the daylight on their faces but the background is relatively dark. The room was tiny and the source was isolating them in that small space." He points out that the table bounce is also adapted to the action of the scene: Landa fills out his paperwork, while the farmer has a tendency' to look down. "I felt it was important to have light in their eyes and to always have that bright spot available to the iris if so desired," he says.





https://www.dvxuser.com/forum/production-tools/lighting-gear/258913-robert-richardson-jfk-natural-born-killers-dp-style-light

https://www.premiumbeat.com/blog/light-like-robert-richardson/ *https://cilovers.com/what-is-backlighting-with-robert-richardson/*

BOUNCE LIGHT, PARLE DOUCEMENT:

1923 MOVIE ABOUT TAYLOR SWIFT AND CHRIS PRATT DANCING WILDLY. DUTCH ANGLE, **BOUNCE LIGHT FROM UMBRELLAS**, DRAMATIC COLORS, FORCED PERSPECTIVE, DRAMATIC ANGLE, TECHNICOLOR, 35MM ANAMORPHIC ANALOG, STYLE OF SINGIN' IN THE RAIN --AR 2:1 **[MIDJOURNEY 5.2]**

BOUNCE LIGHT, EXTRUDED GOPURA:

HTTPS://S.MJ.RUN/JW7KLE8808S DUTCH ANGLE OF UNDULATING FIGURE IN RIBBONS OF DENSE LEYENDECKER INCENSE SMOKE AND GLITTERING CONFETTI, RIO'S CARNIVALE IN THE STYLE OF BASQUIAT, SHIMMERING RIBBONS OR RECURSIVE DIMENSIONAL GRAFFITI WRAPPED AROUND FIGURE, SWIRLING SHAPES, COOL PALETTE, RAY TRACING, REFLECTIONS, DAPPLED LIGHT, **BOUNCE LIGHT**, HIGHLIGHTS --AR 2:1 **[MIDJOURNEY NIJI 5]**

BOUNCE LIGHT, DEATH AND TRANSFIGURATION:

GOYA'S WITCH'S SABBATH, LAYERS OF TRANSPARENT FABRIC, HANDS REACHING THROUGH 4TH DIMENSION, ANDREW WYETH, PALIMPSEST OF BLUE LAYERS AND REFLECTIONS, MEMETIC ENTITIES, **BOUNCE LIGHT**, ZHIN MEMBRANOUS FORMS, MULTIPLE EXPOSURE, OPTIMIZED PHOTON CAPTURE, SHROUD OF TURIN --SEED 3919499756 --AR 2:1 **[MIDJOURNEY 5]**

What is split lighting?

Split lighting (also 'half-rear' lighting) is a lighting technique that lights up half of a subject's face while leaving the other half in a shadow, essentially "splitting" the face. This splitting effect is achieved by a light source that is perpendicular to the subject illuminating directly from one specific side.

Split lighting creates a sharp contrast that makes for a more dramatic and often assertive photo. This is a common technique used in portrait photography as it can emphasize power, glamour, and drama.

What is split lighting photography used for?

- Dramatic effect
- Make a wide face appear narrower
- Highlighting glamour in fashion photography

https://www.studiobinder.com/blog/split-lighting-photography-definition/

La Maschera • 14.3 x 9.5 • Piazza da Spagna, Rome, Italy • 12.1.2011 • f/5.3 • 1/320 sec • 2500 ISO • 95 mm • Nikon D300 • Jazno Francoeur

SPLIT LIGHTING, SUBURBIA:

GREGORY CREWDSON STYLE, EXTREME CLOSE-UP OF MAN STARING AT VIEWER, **SPLIT LIGHTING**, **HALF-REAR LIGHTING**, ELECTROLUMINESCENCE, RAINBOW REFRACTION, SOLARGRAM, KODAK AEROCHROME --AR 2:1 **[MIDJOURNEY 5.2]**

SPLIT LIGHTING, HAW PAR VILLA REMIX:

HTTPS://S.MJ.RUN/PR5VNTBLMWY EXTREME CLOSE-UP OF A HAW PAR VILLA CERAMIC FIGURE, WOMAN'S FACE CRACKING INTO A HUNDRED BUTTERFLIES, EXPLOSION OF COLOR, CONTRE JOUR, MOTION BLUR, **SPLIT LIGHTING,** RAY TRACING, SUBSURFACE SCATTERING, DAPPLED LIGHT, HASSELBLAD --AR 2:1 --S 750 **[MIDJOURNEY NIJI 5]**

What is a catchlight?

A **catchlight** is the light reflected in a subject's eye, the glimmer that comes from an external light source. Also known as an "eye light," it's the highlight reflected off the surface of the eye.

Catchlights can be any size, or shape, and the way they come out depends greatly on how the photographer captures the light. It's common to use reflectors to bounce light into the eyes. And a large round reflector will produce a much bigger catchlight. While using a small electronic flash, will produce a very small catchlight.

https://www.studiobinder.com/blog/what-is-a-catchlight-photography/

Jeff Nissen • 36 x 27 • Seattle, Washington, USA • 5.22.2005 • f/3.5 • 1/50 sec • 100 ISO • 7 mm • Sony DSC-V1 • Jazno Francoeur

A catchlight is also called an ‘eye light’

Eyes seem unemotional and lifeless on film without an eye light. We look to the eyes of a person to gain insight into their emotions, which gives their words and actions context. The **eye light** is the key to illuminating emotions allowing us to better connect with characters. Without eye lights, actors' eyes can appear empty. You can also choose to create this effect if that’s what your story requires. For instance, in the movie “The Godfather,” the eyes stay dark. Viewers constantly must question the characters’ intentions. Without that eye sparkle, characters feel mysterious and distant.

Catchlight (Eyelight) Photography Tips:

- The eye light should be placed near the lens to make sure the reflected catchlight registers
- The shape of the eye light or reflector will effect the shape of the catchlight
- Common catchlight photography involves using a ring light attached to the camera's lens

https://www.studiobinder.com/blog/what-is-a-catchlight-photography/
https://www.nfi.edu/eye-light

Cassandra • 4037 X 2489 • Seattle, Washington, USA • 2.8.2015 • Nikon D800 • Jazno Francoeur

CATCHLIGHT (OR ‘EYE LIGHT’), THE LAKHIYANA:

TIGER WITH CRAZED EYES GROWLING THROUGH LASER CAGE, EXTREME CLOSE-UP, LOW KEY LIGHT, CINEMATIC COLOR GRADING, CANON 5, 35-MM-LENS, DIFFUSE-BACK-LIGHTING, PROFILE VIEW, **SMALL CATCHLIGHT,** LOW-CONTRAST --AR 2:1 **[MIDJOURNEY 4]**

CATCHLIGHT, AFRO FUNK DJ SERIES + THE LAKHIYANA:

GRAPHICAL 60'S MODERN MUSIC POSTER OF EYE, CHINESE AFRO FUNK DJ SHOW IN A 60'S VIETNAMESE MOLOKO MILK BAR, DRAGON AND TIGER MOTIFS, RELATIONAL SYMBIOTIC FUNDAMENTAL PERTURBATIONS, FRACTAL TESSELLATIONS OF OPTICAL ILLUSIONS WITHIN HOLOGRAPHIC QUANTUM FOAM, VIBRANT COLORS, **SMALL CATCHLIGHT** --AR 3:2 **[MIDJOURNEY 5]**

A VICIOUS ALIEN TIGER WITH CRAZED EYES AND WITH FUR INTERPOLATING FROM RED TO YELLOW, EXTREME CLOSE-UP OF EYE, DRAMATIC LIGHTING, **SMALL CATCHLIGHT,** LOW-CONTRAST --AR 2:1 **[MIDJOURNEY 4]**

CATCHLIGHT (OR ‘EYE LIGHT’), THE LAKHIYANA:

KRISTOFER HIVJUSTARING COMBINED WITH AKSEL HENNIE IN A FUTURISTIC VIKING SPACE SUIT STARING AT VIEWER, DRAMATIC ANGLE, SHARP-FOCUS, CINEMATIC COLOR GRADING, DIFFUSE-BACK-LIGHTING, **SMALL CATCHLIGHT**, LOW-CONTRAST --AR 2:3 **[MIDJOURNEY 4]**

CATCHLIGHT, THE LAKHIYANA + SHINJUKU 2096:

HOLOGRAPHIC AMITABH BACHCHAN IN FUTURISTIC PORTRAIT GALLERY, REGAL SHERWANI, BLUE EYES, WHITE BEARD, THINNING HAIR, PROFILE VIEW, 85MM, SHARP-FOCUS, DIFFUSE-BACK-LIGHTING, **SMALL-CATCHLIGHT**, LOW-CONTRAST --AR 3:2 **[MIDJOURNEY 4]**

ASIAN NEILL BLOMKAMP ANDROID CHILD IN FUTURE SHINJUKU WITH FACE LIT UP FROM REFLECTIVE HELMET, RAYTRACING, RAIN, WORM'S EYE VIEW, EXTREME CLOSE-UP OF FACES, DRAMATIC LIGHTING, MOVIE COMPOSITION, WARM KEY LIGHT, BLUE FILL LIGHT, **EYE LIGHT** **[MIDJOURNEY 4]**

What is loop lighting?

Loop lighting is a lighting pattern that creates a circular shadow on the subject's face just under the nose. You can achieve this by placing the key light 45 degrees to the side of the subject and raising it just above their eye line.

The circle or "loop" shape that sits just below the nose, is on the opposite side of where you place your light. It is also typically marked by a longer shadow under the chin and jaw due to the downward slope of the light. Loop lighting is one of the most common lighting setups used in portrait photography because it is flattering for most faces.

Characteristics of Loop Lighting Photography:

- Key light at 45 degree angle to subject
- Raise light above eye line
- Shadow of nose on subject's cheek

https://www.studiobinder.com/blog/what-is-loop-lighting-photography/

Michael Edwards • 30.4 x 21.75 • Seattle, Washington, USA • 12.24.2005 • f2.8 • .4 sec • 100 ISO • 7 mm • Sony DSC-V1 • Jazno Francoeur

LOOP LIGHTING, PARLE DOUCEMENT:

LOOP LIGHTING, TAYLOR SWIFT AS FLAPPER IN 1923 NEW YORK, STYLE OF ROBERT RICHARDSON, ULTRAVIOLET LIGHT, SPOTLIGHT --AR 2:3 **[MIDJOURNEY 5.2]**

What is butterfly lighting?

Butterfly lighting is a lighting pattern used in portrait photography where the key light is placed above and pointing down on the subject's face. This creates a dramatic shadow under the nose and chin that looks like a butterfly. It's also called 'Paramount lighting,' named for the Hollywood studio and how they lit their most glamorous and beautiful actresses. This provides a flattering look that emphasizes a subject's facial features, highlighting the eyebrows, cheekbones, and nose in a photogenic way. Other reasons to pick this lighting pattern are that it is versatile, is easy to set up, doesn't require a lot of fancy equipment, and creates a natural look.

What do you need to capture butterfly lighting?

- A key light
- Flashes and triggers
- Modifiers
- Reflector

https://petapixel.com/butterfly-lighting/
https://www.studiobinder.com/blog/what-is-butterfly-lighting-definition/

Bex • 2070 x 2454 • Seattle, Washington, USA • 12.22.2015 • f/1.8 • 1/100 sec • 2000 ISO • 50 mm • Nikon D800 • Jazno Francoeur

BUTTERFLY LIGHTING, PARLE DOUCEMENT:

BUTTERFLY LIGHTING, TAYLOR SWIFT AS FLAPPER IN 1923 NEW YORK, ROBERT RICHARDSON, ULTRAVIOLET LIGHT, SPOTLIGHT --AR 3:2 **[MIDJOURNEY 5.2]**

CG LIGHTING

Virtual lighting is faster to create than physical lighting, and also easier to edit, whether you are working on a tablet, a desktop computer, or in a virtual space.

What is ray tracing?

In 3D computer graphics, **ray tracing** is a technique for modeling light transport for use in a wide variety of rendering algorithms for generating digital images.

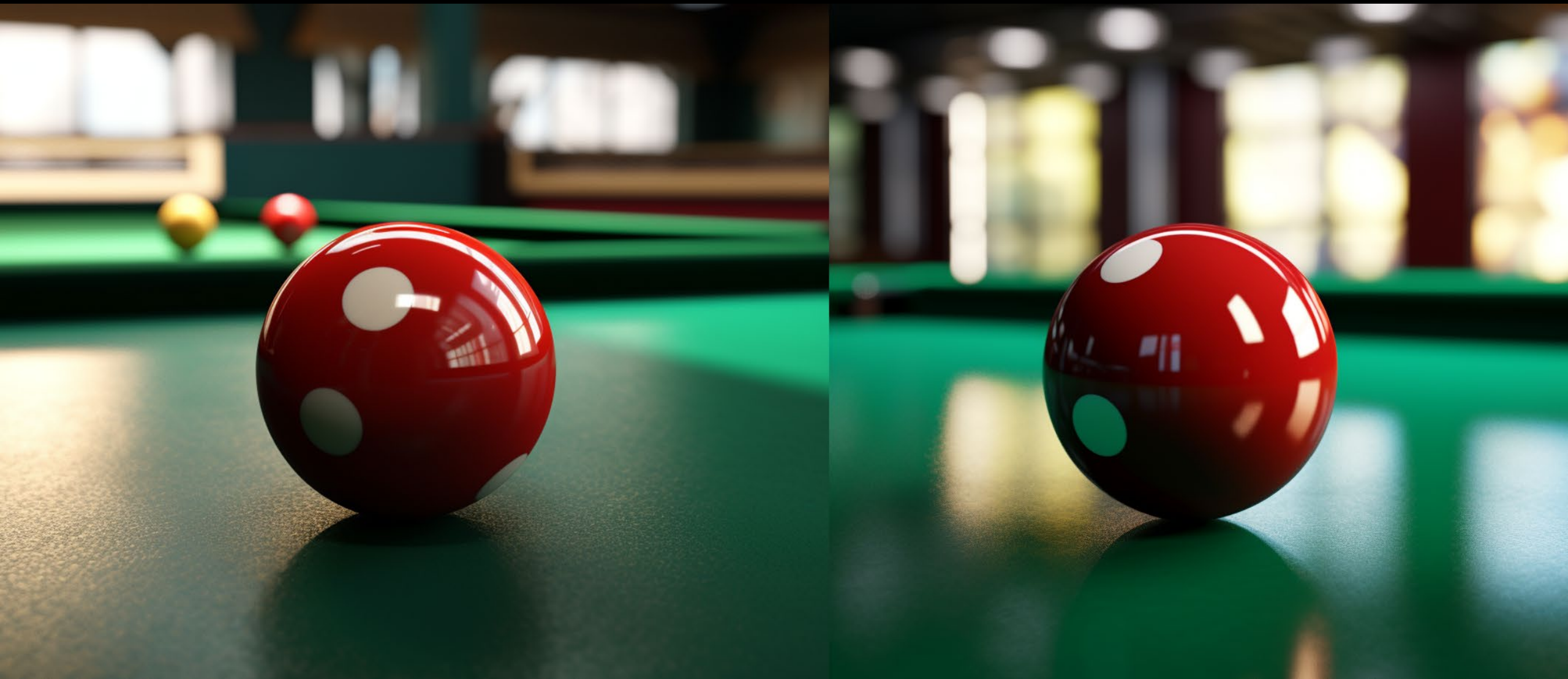
On a spectrum of computational cost and visual fidelity, ray tracing-based rendering techniques, such as ray casting, recursive ray tracing, distribution ray tracing, photon mapping and path tracing, are generally slower and higher fidelity than scanline rendering methods. Thus, ray tracing was first deployed in applications where taking a relatively long time to render could be tolerated, such as still computer-generated images, and film and television visual effects (VFX), but was less suited to real-time applications such as video games, where speed is critical in rendering each frame.

Since 2019, however, hardware acceleration for real-time ray tracing has become standard on new commercial graphics cards, and graphics APIs have followed suit, allowing developers to use hybrid ray tracing and rasterization-based rendering in games and other real-time applications with a lesser hit to frame render times.

https://en.wikipedia.org/wiki/Ray_tracing_(graphics)

RAYTRACING TEST:

BILLIARD BALL TO THE LEFT: RED BILLIARD BALL ON GREEN POOL TABLE, AR 3:2 **[MIDJOURNEY 5.2]**
BILLIARD BALL TO THE RIGHT: HTTPS://S.MJ.RUN/8RBOE3ON_QM RED BILLIARD BALL ON GREEN POOL TABLE, **RAY TRACING**, REFLECTIVE --SEED 722097280 **[MIDJOURNEY 5.2]**



RAYTRACING TEST:

PITCHER TO THE LEFT: GLASS WATER PITCHER WITH GREEN LIQUID ON BLUE COUNTER TOP **[MIDJOURNEY 5.2]**
PITCHER TO THE RIGHT: HTTPS://S.MJ.RUN/N2-1EAFDLMC GLASS WATER PITCHER WITH GREEN LIQUID ON BLUE COUNTER TOP, REFLECTIVE, **RAY TRACING**, SUBSURFACE SCATTERING --SEED 2324102199 **[MIDJOURNEY 5.2]**

RAY TRACING, MIDJOURNEY- PROMPT TRICKS CHALLENGE:

FULL FIGURE SHOT OF A WOMAN IN A FUTURISTIC RACE CAR WITH HELMET, BACK OF CAR IN 3/4 FACING AWAY FROM VIEWER, HYPERMAXIMALIST, GRAPHIC STYLE, EDGY, TRON, SYD MEAD STYLE, SPEED RACER, **RAY TRACING**, SUBSURFACE SCATTER, REFLECTIVE, --AR 2:1 --STYLIZE 80 **[MIDJOURNEY 5.2]**

RAY TRACING, MIDJOURNEY- PROMPT TRICKS CHALLENGE:

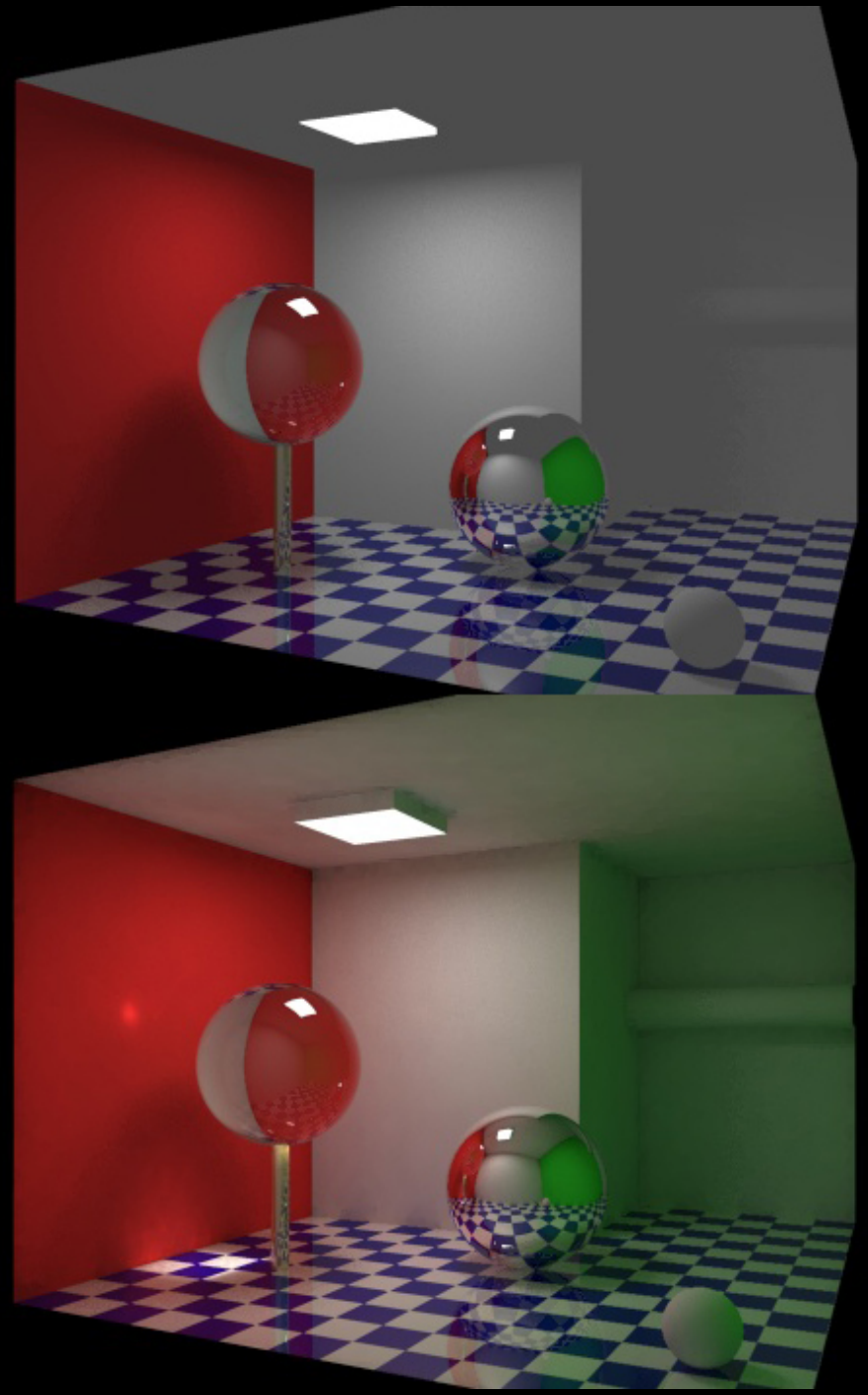
FULL FIGURE SHOT OF A WOMAN IN A FUTURISTIC RACE CAR WITH HELMET, HYPERMAXIMALIST, GRAPHIC STYLE, EDGY, TRON, SYD MEAD STYLE, SPEED RACER, **RAY TRACING**, SUBSURFACE SCATTERING, REFLECTIVE --AR 2:1 --STYLIZE 80 **[MIDJOURNEY 5.2]**

What is Global illumination?

Global illumination, or indirect illumination, is a group of algorithms used in 3D computer graphics that are meant to add more realistic lighting to 3D scenes. Such algorithms take into account not only the light that comes directly from a light source (**direct illumination**), but also subsequent cases in which light rays from the same source are reflected by other surfaces in the scene, whether reflective or not (**indirect illumination**).

Top Right: Rendering without global illumination. Areas that lie outside of the ceiling lamp's direct light lack definition. For example, the lamp's housing appears completely uniform. Without the ambient light added into the render, it would appear uniformly black.

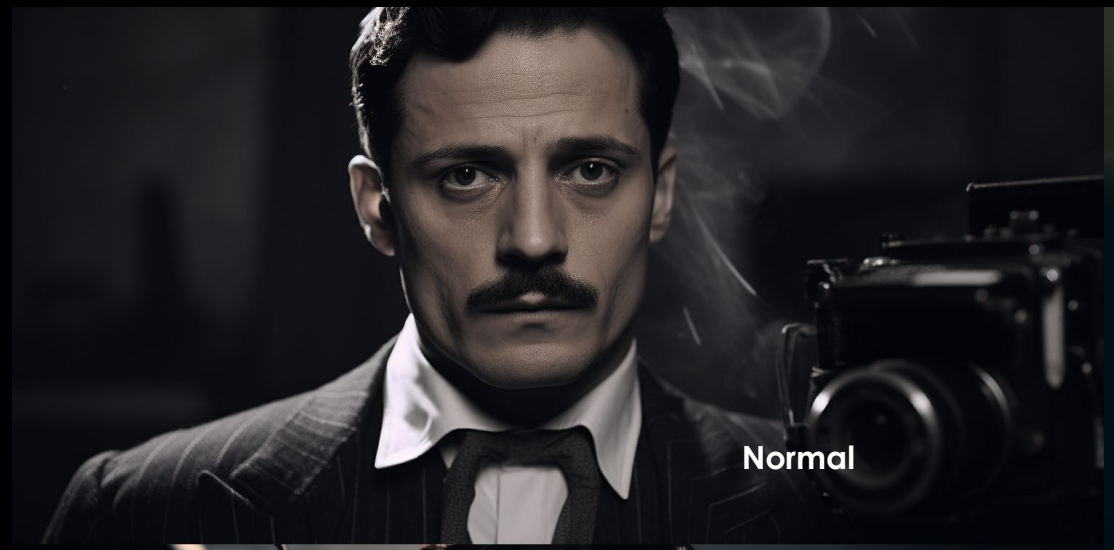
Bottom Right: Rendering with global illumination. Light is reflected by surfaces, and colored light transfers from one surface to another. Notice how color from the red wall (left) and green wall (right) reflects onto other surfaces in the scene. Also notable is the caustic projected onto the red wall from light passing through the glass sphere.

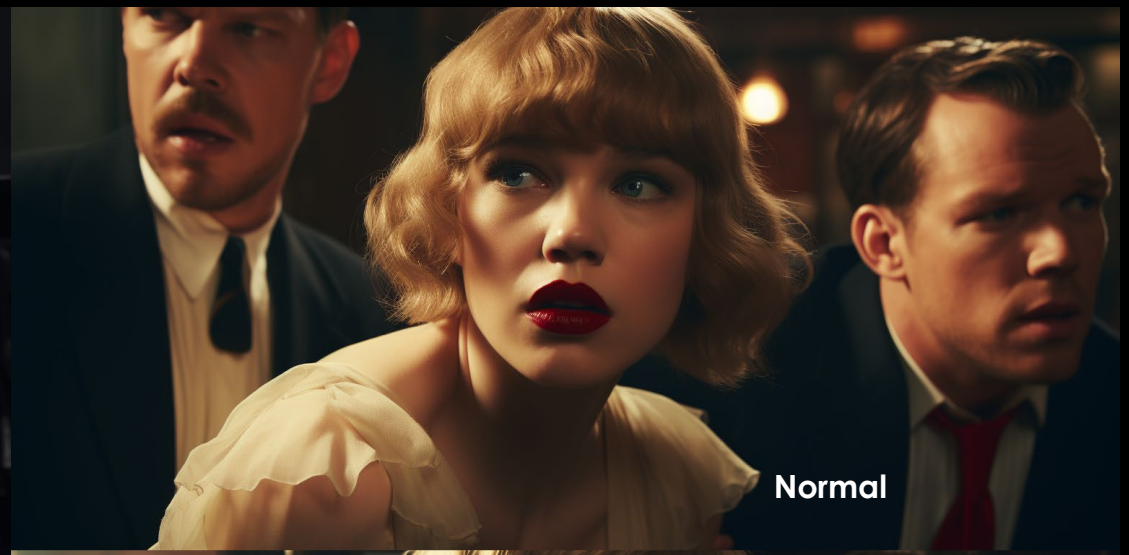


https://en.wikipedia.org/wiki/Global_illumination
https://people.eecs.berkeley.edu/~sequin/CS184/TOPICS/GlobalIllumination/Gill_0.html

GLOBAL ILLUMINATION TESTS, PARLE DOUCEMENT:

TOP + BOTTOM ROW LEFT: STEFANO ACCORSI AS A NARCISSTIC JOURNALIST IN A 1923 ROMANTIC MOVIE, NEUTRAL BACKGROUND, EXTREME CLOSE-UP, DRAMATIC ANGLE, **[GLOBAL ILLUMINATION]** --SEED 1309424554 --AR 2:1 **[MIDJOURNEY 5.2]**
TOP + BOTTOM ROW RIGHT: 1923 MOVIE ABOUT TAYLOR SWIFT IN FLAPPER GEAR, CRYING IN PROFILE, CHRIS PRATT AND STEFANO ACCORSI LOOKING ON, DUTCH ANGLE, DRAMATIC ANGLE, **[GLOBAL ILLUMINATION]** --SEED 3542781612 --AR 2:1 **[MIDJOURNEY 5.2]**





GLOBAL ILLUMINATION TESTS, PARLE DOUCEMENT:

TOP + BOTTOM ROW LEFT: CHRIS PRATT SURROUNDED BY WOMEN IN A 1923 NEW YORK NIGHTCLUB, GLOBAL ILLUMINATION, STARING RIGHT AT VIEWER, DRAMATIC ANGLE **[GLOBAL ILLUMINATION]** --AR 2:1 --SEED 3777603433 **[MIDJOURNEY 5.2]**
TOP + BOTTOM ROW RIGHT: KIERNA SHIPKA AS A NARCISSTIC FLAPPER STARING IN MIRROR APPLYING MAKEUP IN A 1923 NEW YORK MOVIE, DRAMATIC ANGLE **[GLOBAL ILLUMINATION]** --SEED 3542781612 --AR 2:1 **[MIDJOURNEY 5.2]**

What is subsurface scattering?

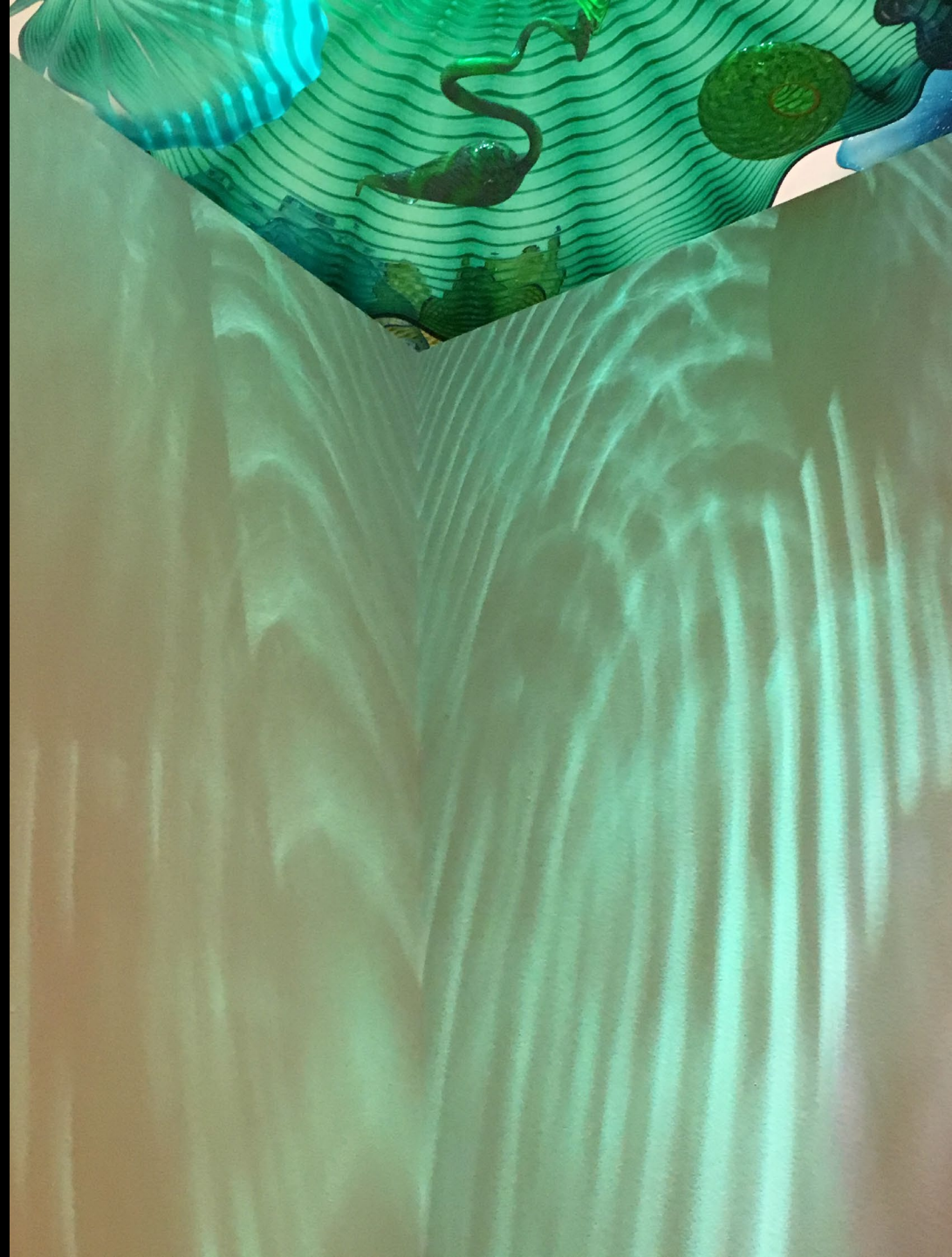
Subsurface scattering is a mechanism of light transport in which light that penetrates the surface of a translucent object is scattered by interacting with the material and exits the surface at a different point. The light will generally penetrate the surface and be reflected a number of times at irregular angles inside the material before passing back out of the material at a different angle than it would have had if it had been reflected directly off the surface.

Subsurface scattering is important for realistic 3D computer graphics, being necessary for the rendering of materials such as marble, skin, leaves, wax and milk. If subsurface scattering is not implemented, the material may look unnatural, like plastic or metal.

To improve rendering efficiency, many real-time computer graphics algorithms only compute the reflectance at the *surface* of an object. In reality, many materials are slightly translucent: light enters the surface; is absorbed, scattered and re-emitted – potentially at a different point. Skin is a good case in point; only about 6% of reflectance is direct, 94% is from subsurface scattering. An inherent property of semitransparent materials is absorption. The further through the material light travels, the greater the proportion absorbed. To simulate this effect, a measure of the distance the light has traveled through the material must be obtained.

https://en.wikipedia.org/wiki/Subsurface_scattering

Chihuly Glass Museum • 3024 x 4032 • Seattle, WA • 9.3.2017 •
f/2.2 • 1/30 sec • 200 ISO • 4 mm • Nikon D800



SUBSURFACE SCATTERING, THE LAKHIYANA:

WAR PHOTOGRAPHY, STYLE OF ARNE SVENSON, GOLDEN HOUR, CATHEDRAL COURTYARD, 30-YEAR-OLD FEMALE CLERIC WEARING CARDINAL'S RED ATTIRE CHARITHRA CHANDRAN MORPHED WITH ZHANG ZILIN, **SUBSURFACE SCATTERING,** VAN HERPEN STYLE --AR 2:1 **[MIDJOURNEY 5.2]**

HEXAGONAL BLACK DICE FLOATING IN AN EXOTIC GREEN COCKTAIL DRINK, 85MM, LOW-CONTRAST, **SUBSURFACE SCATTERING** --AR 3:2 **[MIDJOURNEY 4]**

SUBSURFACE SCATTERING, ORIGAMI ODYSSEYS:

WORM'S EYE VIEW OF COMPLEX LAYERS OF ART DECO ORIGAMI DEPICTING CHILDREN WITH SEMI-TRANSPARENT UMBRELLAS IN A DOWNPOUR WEARING HAKAMA, ST. CHAPELLE + WAYANG KULIT TEXTURES EMERGING 2D TO 3D, STYLE OF JULIE TAYMOR, DYNAMIC POSES, **SUBSURFACE SCATTERING**, DAPPLED LIGHT, GOLDEN HOUR, RAY TRACING, MIRRORED SURFACES --AR 2:1 **[MIDJOURNEY 5]**

SUBSURFACE SCATTERING, ORIGAMI ODYSSEYS:

WORM'S EYE VIEW OF COMPLEX LAYERS OF ART DECO ORIGAMI DEPICTING CHILDREN WITH SEMI-TRANSPARENT UMBRELLAS IN A DOWNPOUR WEARING HAKAMA, ST. CHAPELLE + WAYANG KULIT TEXTURES EMERGING 2D TO 3D, STYLE OF JULIE TAYMOR, DYNAMIC POSES, **SUBSURFACE SCATTERING**, DAPPLED LIGHT, GOLDEN HOUR, RAY TRACING, MIRRORED SURFACES --AR 2:1 **[MIDJOURNEY 5]**

What is bloom?

Bloom (sometimes referred to as light bloom or glow) is a computer graphics effect used in video games, demos, and high-dynamic-range rendering (HDRR) to reproduce an imaging artifact of real-world cameras. The effect produces fringes (or feathers) of light extending from the borders of bright areas in an image, contributing to the illusion of an extremely bright light overwhelming the camera or eye capturing the scene. It became widely used in video games after an article on the technique was published by the authors of Tron 2.0 in 2004.

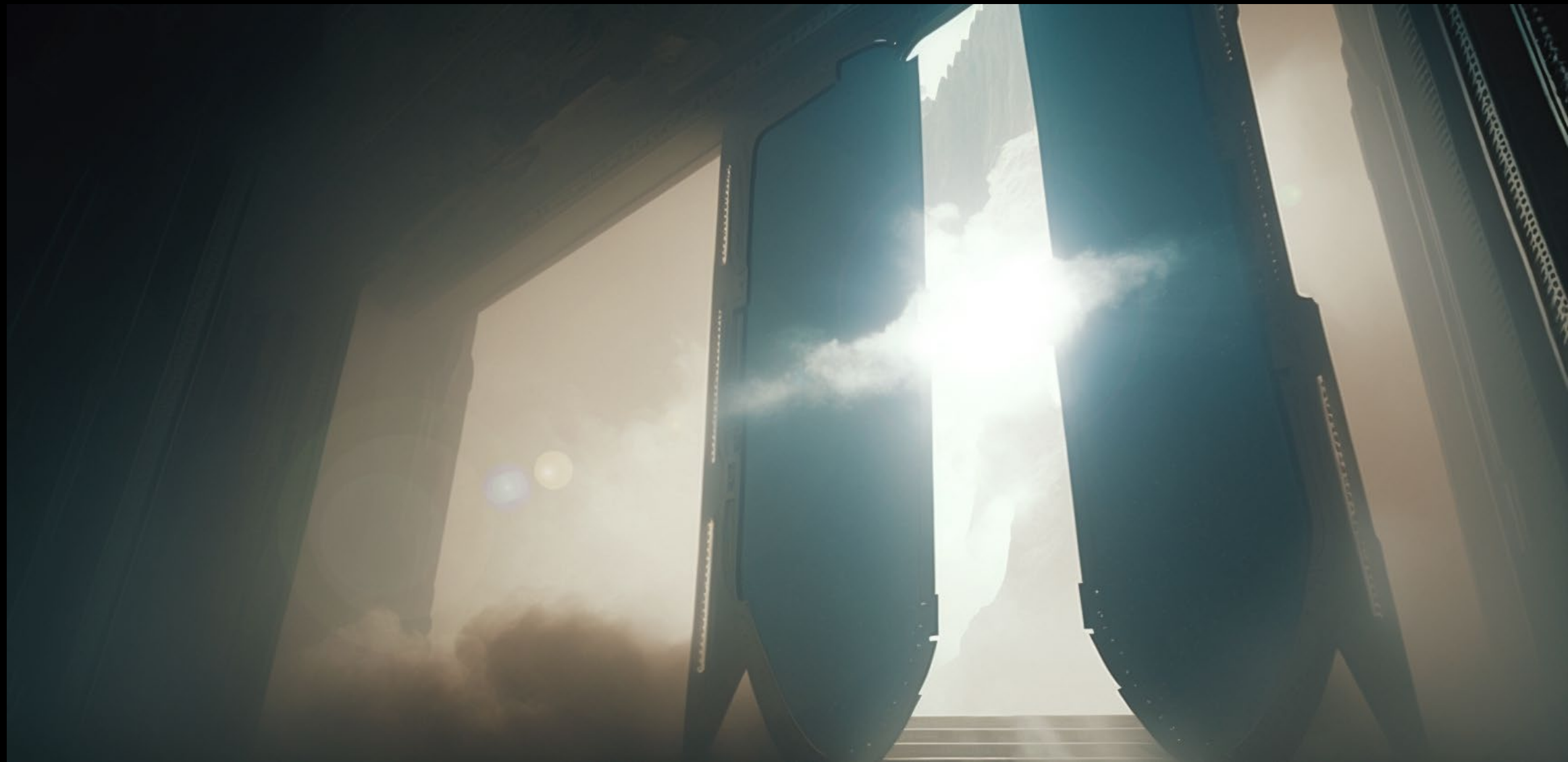
One physical basis of bloom is that, in the real world, lenses can never focus perfectly. Even a perfect lens will convolve the incoming image with an Airy disk (the diffraction pattern produced by passing a point light source through a circular aperture). Under normal circumstances, these imperfections are not noticeable, but an intensely bright light source will cause the imperfections to become visible. As a result, the image of the bright light appears to bleed beyond its natural borders.

https://en.wikipedia.org/wiki/Bloom_(shader_effect)

Body Heat • 4782 x 7360 • Redmond, WA • 10.29.2016 • f/1.8 • 1/250 sec • 1250 ISO • 50 mm • Nikon D800 • Jazno Francoeur

BLOOM SHADER EFFECT, THE LAKHIYANA:

¾ WORM'S EYE VIEW OF A FUTURISTIC ELONGATED TELEPORTATION GATE WITH MIRRORED SURFACE MATERIALIZING SPACECRAFT INTO SMOKE-FILLED HANGARS, **BLOOM SHADER,** CONTRE-JOUR, BLADE RUNNER 2049, KUBRICK'S 2001 + ZAHA HADID + PARTHENON, GOD RAYS, SUBSURFACE SCATTERING, RAY TRACING, ELEGANT, MONOCHROMATIC WHITE PALETTE, CHIAROSCURO, 85MM, DIFFUSE-BACK-LIGHTING --AR 2:1 **[MIDJOURNEY 4]**



BLOOM SHADER EFFECT, THE LAKHIYANA:

¾ WORM'S EYE VIEW OF A FUTURISTIC ELONGATED TELEPORTATION GATE WITH MIRRORED SURFACE MATERIALIZING SPACECRAFT INTO SMOKE-FILLED HANGARS, **BLOOM SHADER,** CONTRE-JOUR, BLADE RUNNER 2049, KUBRICK'S 2001 + ZAHA HADID + PARTHENON, GOD RAYS, SUBSURFACE SCATTERING, RAY TRACING, ELEGANT, MONOCHROMATIC WHITE PALETTE, CHIAROSCURO, 85MM, DIFFUSE-BACK-LIGHTING --AR 2:1 **[MIDJOURNEY 4]**

BLOOM SHADER EFFECT, THE LAKHIYANA:

A BALD MAN IN A MOLDED GOLDEN SPACE SUIT WITH GUPTA FLOURISHES FLYING IN FORCED PERSPECTIVE AT VIEWER THROUGH COLORFUL BEAMS OF WARP-SPEED LIGHT IN NEBULA, MULTIPLE EXPOSURE, MOTION BLUR, 85MM, OPTIMIZED PHOTON CAPTURE, DIFFUSE-BACK-LIGHTING, FACING-CAMERA, SMALL-CATCHLIGHT --AR 3:2 **[MIDJOURNEY 4]**

A BLOMKAMP-STYLED MACHINE WITH FRENETIC BOLTS OF ENERGY LIKE A TESLA COIL TELEPORTING AN EASTERN INDIAN FEMALE, OPTIMIZED PHOTON CAPTURE, HUD DISPLAY, 75MM, STYLE OF VAN HERPEN AND GIGER, MULTIPLE EXPOSURES, TRACERS, LONG EXPOSURE --AR 3:2 **[MIDJOURNEY 4]**

LUMINESCENCE

From double-exposed x-rays to photon capture, specialized light effects based on luminescence can elevate every element in your composition, especially if you are working with VFX.

What is luminescence?

Luminescence is the "spontaneous emission of radiation from an electronically excited species (or from a vibrationally excited species) not in thermal equilibrium with its environment", according to the IUPAC definition. A luminescent object is emitting **cold light,** in contrast to **incandescence**, where an object only emits light after heating. Generally, the emission of light is due to the movement of electrons between different energy levels within an atom after excitation by external factors. However, the exact mechanism of light emission in "vibrationally excited species" is unknown, as seen in sonoluminescence. The dials, hands, scales, and signs of aviation and navigational instruments and markings are often coated with luminescent materials in a process known as **luminising. For the sake of brevity, I am only focusing on those phenomena in bold below in the following slides:**

Candoluminescence, Cathodoluminescence, Chemiluminescence, Cryoluminescence, Crystalloluminescence, **Bioluminescence, Electroluminescence,** Electrochemiluminescence, **Fluorescence,** Mechanoluminescence, **Phosphorescence**, **Photoluminescence**, Piezoluminescence, Radioluminescence, Sonoluminescence, **Thermoluminescence**

https://education.nationalgeographic.org/resource/bioluminescence/

What is fluorescence?

https://en.wikipedia.org/wiki/Fluorescence

Fluorescence is the emission of light by a substance that has absorbed light or other electromagnetic radiation. **It is a form of luminescence**. In most cases, the emitted light has a longer wavelength, and therefore a lower photon energy, than the absorbed radiation. A perceptible example of fluorescence occurs when the absorbed radiation is in the ultraviolet region of the electromagnetic spectrum (invisible to the human eye), while the emitted light is in the visible region; this gives the fluorescent substance a distinct color that can only be seen when the substance has been exposed to UV light.

Car Wash • 39.1 x 22 • Seattle, Washington • 11.24.2007 • f/2.9 • 1/40 • 80 ISO • 5.2 mm • Panasonic DMC-FX01 • Jazno Francoeur

NEON LIGHTS, ROLLER DERBY GIRLS:

CLOSE-UP OF LOGO ON WALL THAT READS "B-U-F-F-A" , SUBSURFACE SCATTERING, NEON LIGHTS, CINEMATIC --AR 2:1 **[MIDJOURNEY 5.1]**

NEON LIGHTS, ROLLER DERBY GIRLS:

1ST PERSON PERSPECTIVE, POV CLOSE-UP OF TATTOOED ROLLER DERBY GIRL'S HANDS ADJUSTING GLOVES, SUBSURFACE SCATTERING, DAPPLED **NEON LIGHTS**, MOODY LIGHTING IN SMOKE-FILLED DRESSING ROOM --AR 3:2 **[MIDJOURNEY 5.2]**

NEON LIGHTS, ROLLER DERBY GIRLS:

DUTCH ANGLE CLOSE-UP OF MAD MAX FURY ROAD BURLESQUE VIOLENT ROLLER DERBY DIVA IN BETTY PAGE SMASHING INTO OPPONENT, MULTIPLE EXPOSURE, OPTIMIZED PHOTON CAPTURE, TETRADIC COLOR SCHEME, HIGH REFLECTIVITY, SPEED RACER, SUBSURFACE SCATTERING, CARL ZEISS LENS, DAPPLED **NEON LIGHTS**, DIMENSIONAL APPLIQUÉ, BARGELLO INTERPOLATING YELLOW TO BLUE --AR 2:1 **[MIDJOURNEY 5.2]**

NEON LIGHTS, THE HUMAN CANVAS:

EXTREME CLOSE-UP OF A BLACK WOMAN COVERED WITH BURNING HOLOGRAPHIC NOUVEAU **NEON** SNAKE TATTOOS EMERGING 2D TO 3D TRAVELING UP HER LEG OVER BLUE LETTERS WINDING AROUND BELLY ON A BED OF FLOWERS WITH SMOKE ISSUING FROM ITS NOSTRILS, SCULPTURAL RELIEF, AFRICAN FOLKLORE, BOUNCED LIGHT --AR 2:1 **[MIDJOURNEY NIJI 5]**

NEON LIGHTS, THE HUMAN CANVAS:

EXTREME CLOSE-UP OF A BLACK MALE COVERED WITH BURNING HOLOGRAPHIC NOUVEAU **NEON** SNAKE TATTOOS EMERGING 2D TO 3D TRAVELING UP HIS LEG OVER BLUE LETTERS WINDING AROUND BELLY ON A BED OF FLOWERS WITH SMOKE ISSUING FROM ITS NOSTRILS, SCULPTURAL RELIEF, AFRICAN FOLKLORE, BOUNCED LIGHT --AR 2:1 **[MIDJOURNEY NIJI 5]**

What is bioluminescence?

https://www.usni.org/magazines/proceedings/2021/october/use-bioluminescence-own-asw-night

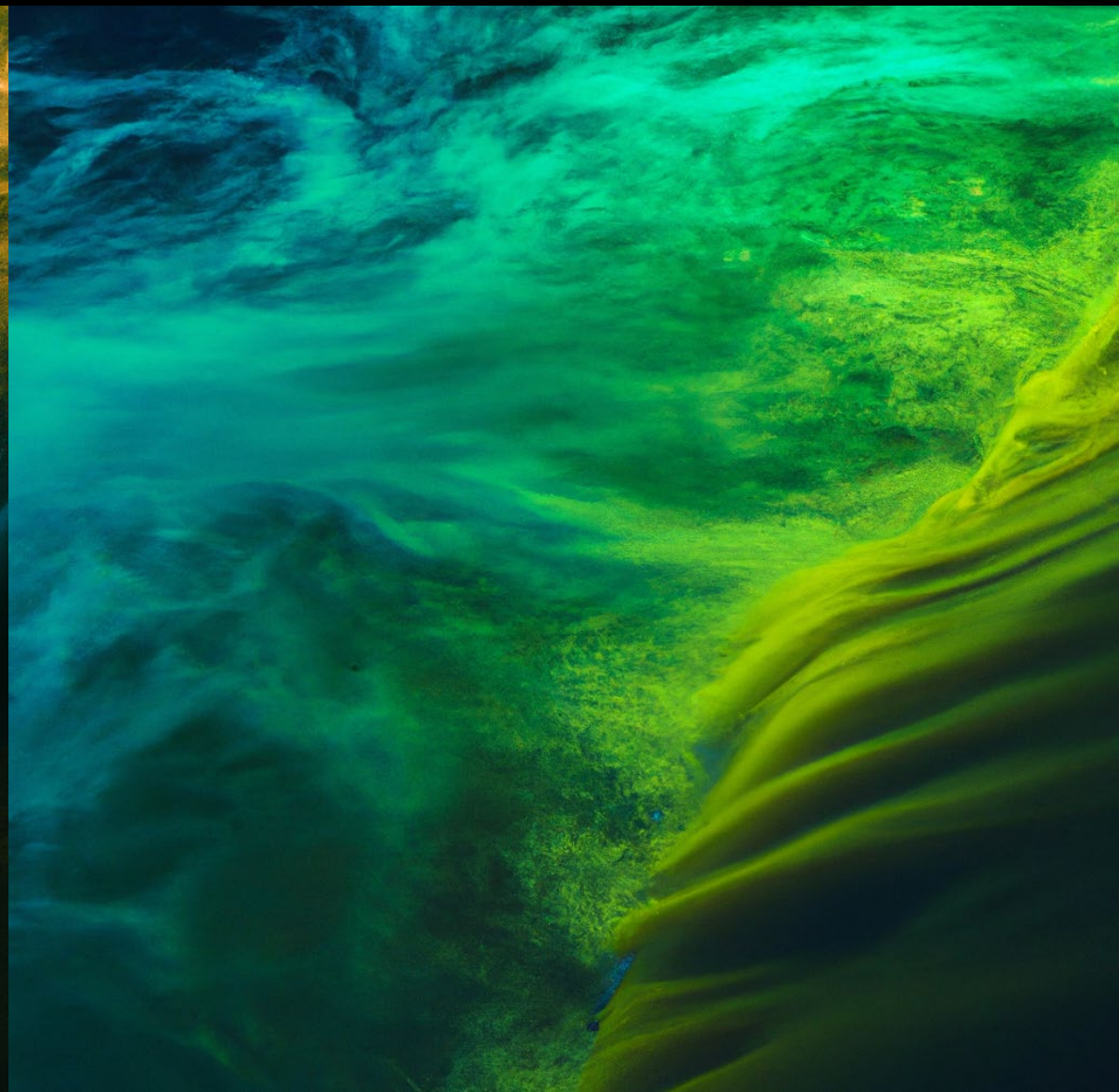
Bioluminescence is light produced by a chemical reaction within a living organism. It is a type of chemiluminescence, which is simply the term for a chemical reaction where light is produced. (Bioluminescence is chemiluminescence that takes place inside a living organism.) Bioluminescence is a **cold light.** Cold light means less than 20% of the light generates thermal radiation, or heat.

Most bioluminescent organisms are found in the ocean. These bioluminescent marine species include fish, bacteria, and jellies.

https://education.nationalgeographic.org/resource/bioluminescence/

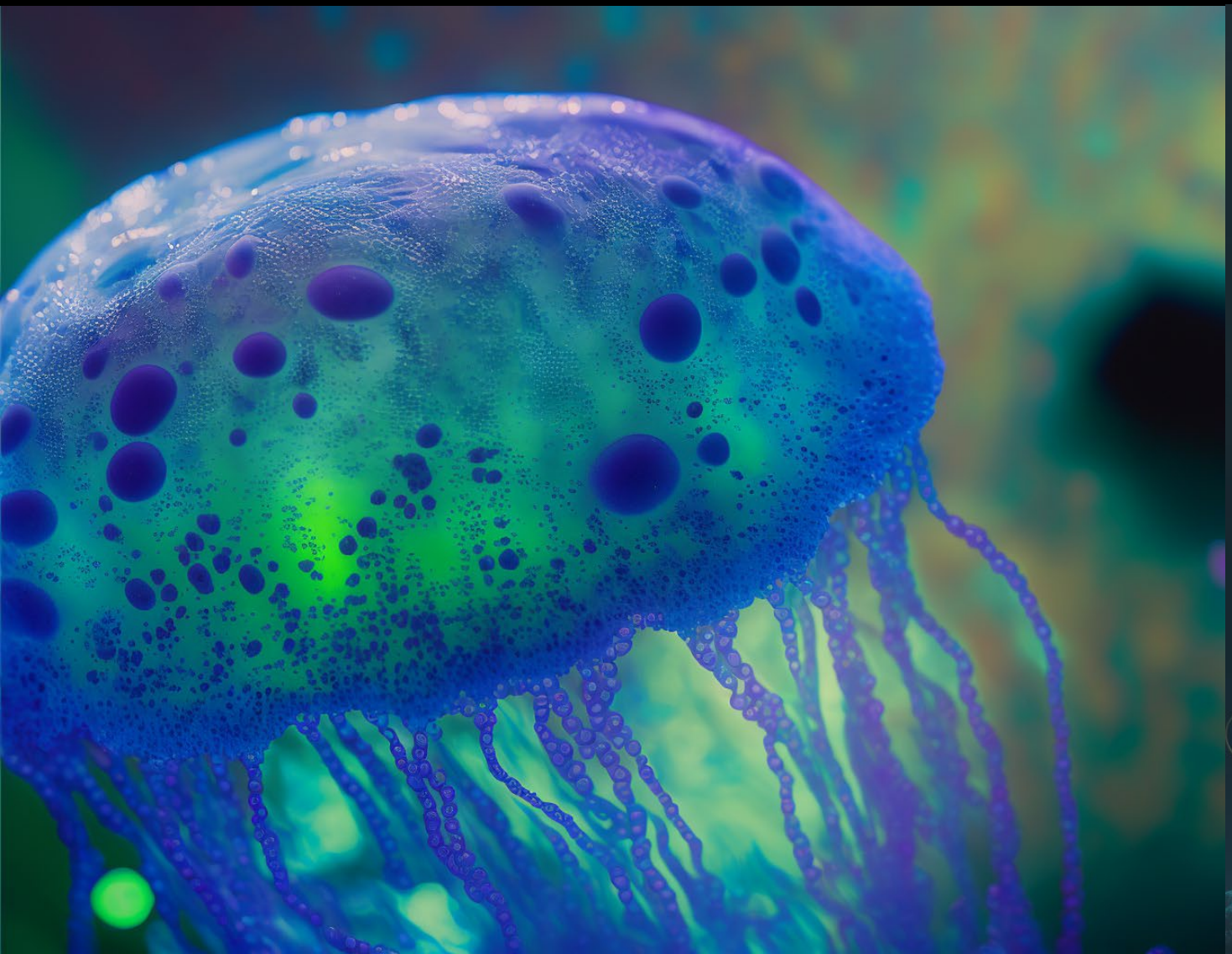
BIOLUMINESCENCE, THE FLOWER:

TURBID WAVES AT THE BASE OF A WATERFALL IN STYLE OF NAT GEO, INTERPOLATING BLUE TO GREEN, **BIOLUMINESCENCE,** SPECULAR HIGHLIGHTS, DRAMATIC LIGHTING, GOLDEN HOUR **[DALL-E 2]**



BIOLUMINESCENCE, MAGNETIC LIQUID VFX:

PERVAPORATING SUPERCOOLED LIQUID INTERPOLATING FROM BLUE TO LIGHT BLUE SPLASHING ON A SEMI-PERMEABLE MEMBRANE IN **JELLYFISH** SHAPES CONGEALED ABOVE AN IRIDESCENT **ALGAL BLOOM** IN BATIK PATTERNS, 35MM, OCTANE RENDER --AR 3:2 --CHAOS 10 **[MIDJOURNEY 4]**



BIOLUMINESCENCE, THE LAKHIYANA:

ZAHA HADID SPACESHIP EMERGING FROM TELEPORTATION GATE, LAMELLAR PERVAPORATING SUPERCOOLED LIQUID INTERPOLATING FROM BLUE TO LIGHT BLUE, SEMI-PERMEABLE MEMBRANES IN FRACTAL SHAPES, **IRIDESCENT ALGAL BLOOM** IN BATIK PATTERNS, DANXIA LANDFORMS, COLUMNAR BASALT, MOERAKI BOULDERS, EXTRUDED HOLOGRAPHIC FOXFIRE + **BLUE BIOLUMINESCENT WATER** **[MIDJOURNEY 4]**

BIOLUMINESCENCE, THE HUMAN CANVAS:

HTTPS://S.MJ.RUN/F9YHWLAUHIG EXTREME CLOSE-UP OF A MAN COVERED WITH TATTOOS MADE ENTIRELY OF BURNING HOLOGRAPHIC LIGHT, SNAKE WITH WINGS EMERGING FROM 2D TO 3D TRAVELING UP HIS RIGHT LEG OVER A SEA OF NOUVEAU GREEN CYRILLIC LETTERS WINDING AROUND HIS BELLY ON A BED OF FLOWERS, RUSSIAN FOLKLORE, SUBDERMAL **BIOLUMINESCENT** HUD DISPLAY IN CYRILLIC --AR 2:1 **[MIDJOURNEY NIJI 5]**

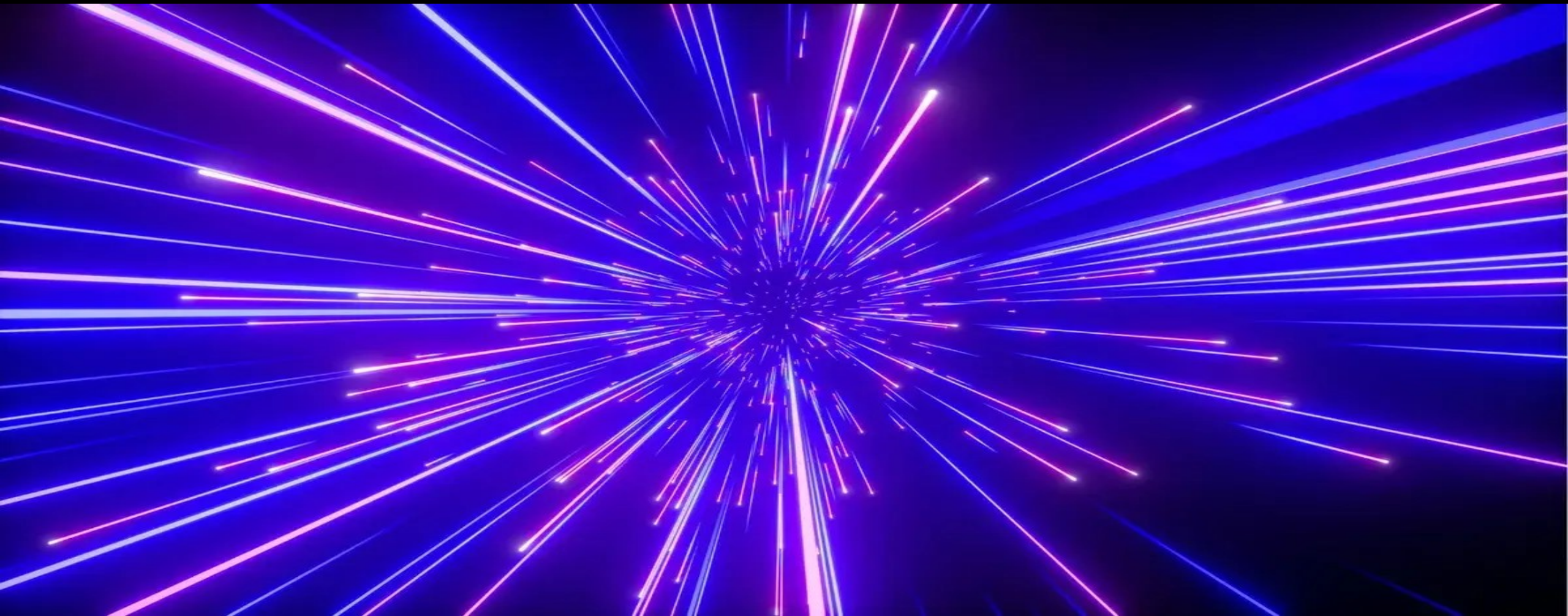
BIOLUMINESCENCE, HAMMER OF GOD:

CLOSE-UP OF MULTICOLORED ALIEN CHILD FILLED WITH **JELLYFISH** EXPLODING INTO FIBER OPTICS THAT FORM BEAUTIFUL ANDROID, PSYCHEDELIC TRIP, HOLOGRAPHIC EXTRUSION EMERGING 2D TO 3D IN PROFILE, STYLE OF WILLIAM KLEIN SHOT WITH LOMO LC-WIDE 35MM, LIGHT LEAKS, LOMOGRAPHY REDSCALE XR 50-200 35MM --AR 3:1 **[MIDJOURNEY NIJI 5]**

https://interestingengineering.com/science/400000-pixel-camera-capture-photon-image/

What is photon capture?

Photons are the basic unit of light and have no mass or charge. Even microwaves, infrared light, and X-rays are made up of photons. A conventional camera sensor needs hundreds of photons per pixel to form an image. **A single-photon sensor**, on the other hand, is so sensitive to incident light that it can **capture individual photons** with picosecond resolution time-tags. This high-resolution time dimension provides a rich source of information that is not available to conventional cameras.



PHOTON CAPTURE, THE LAKHIYANA:

WOMAN IN FUTURISTIC KATHAKALI SPACESUIT WITH TRON FLOURISHES FLYING THROUGH WARP SPEED THROUGH A NEBULA, OSCILLATING CHLADNI AND SANSKRIT HOLOGRAMS PIERCING THE SPACE-TIME CONTINUUM REFLECTED IN HELMET, RAY TRACING, STYLE OF STARGATE SEQUENCE FROM 2001, EXTREME CLOSE-UP, MULTIPLE EXPOSURE, MOTION BLUR, 85-MM-LENS, QUANTIFIED **PHOTON CAPTURE** --AR 2:1 **[MIDJOURNEY 5]**

PHOTON CAPTURE, THE LAKHIYANA:

WOMAN IN FUTURISTIC KATHAKALI SPACESUIT WITH TRON FLOURISHES FLYING THROUGH WARP SPEED THROUGH A NEBULA, OSCILLATING CHLADNI AND SANSKRIT HOLOGRAMS PIERCING THE SPACE-TIME CONTINUUM REFLECTED IN HELMET, RAY TRACING, STYLE OF STARGATE SEQUENCE FROM 2001, EXTREME CLOSE-UP, MULTIPLE EXPOSURE, MOTION BLUR, 85-MM-LENS, QUANTIFIED **PHOTON CAPTURE** --AR 2:1 **[MIDJOURNEY 5]**

PHOTON CAPTURE, THE FLOWER:

PINK LOTUS FLOWER IN WATERFALL, CAUSTICS, SPECULARITY, SARGENT, GOLDEN HOUR, TIME LAPSE, QUANTIFIED **PHOTON CAPTURE**, HOKUSAI **[DALL-E 2]**

What is electroluminescence?

Electroluminescence is the generation of light through electrical operation. You can use this principle directly in electronic devices, whether it be for lighting or display purposes. There are two main types of light emitting devices which use electroluminescence. These are **LEDs and OLEDs.** This technology is not a recent discovery; for example, in 1960 Chrysler was already incorporating electroluminescent panels in its vehicles. One of its main characteristics is the type of light it emits, very similar to that of neon lights.

In the series to the right, I attached a camera to my car's steering wheel with the bulb setting at 8 seconds; this created a multiple exposure effect with the LED odometer and surrounding lights.

https://www.ossila.com/en-us/pages/electroluminescence
https://www.ledkia.com/blog/uk/what-is-electroluminescence/

Airport Run, 55mph • 36 x 27 • Orlando, Florida, USA • 1.7.2004 • f/2.8 • 8 sec • 100 ISO • 7 mm • Sony DSC-V1 • Jazno Francoeur

ELECTROLUMINESCENCE, THE ART OF PURPOSEFUL COINCIDENCE:

STYLE OF CONFOCAL LASER SCANNING MICROSCOPE PHOTOGRAPHY, WHITE PAPER TORN IN CONSTRUCTIVIST SHAPES REVEALING AN AFRICAN QUEEN UNDERWATER CONTAINED IN KARA WALKER SILHOUETTES, STYLE OF KEHINDE WILEY, **ELECTROLUMINESCENCE,** EXTREME CLOSE-UP, BASQUIAT --AR 2:1
[MIDJOURNEY 5.2]

ELECTROLUMINESCENCE, THE ART OF PURPOSEFUL COINCIDENCE:

STYLE OF CONFOCAL LASER SCANNING MICROSCOPE PHOTOGRAPHY, WHITE PAPER TORN IN CONSTRUCTIVIST SHAPES EMERGING 2D TO 3D REVEALING DICTATOR CONTAINED IN KARA WALKER SILHOUETTES, **ELECTROLUMINESCENCE,** DIEBENKORN, EXTREME CLOSE-UP --AR 2:1 **[MIDJOURNEY 5.2]**

What is x-ray double exposure?

X-ray double exposure is an x-ray error that can be used to great effect in AI.

Double exposure is a classic operator error that constitutes approximately 2% of all rejected images. The consequence of double exposure can be either a single repeated examination, when an inanimate object is involved, or two repeated examinations when two patients are involved.

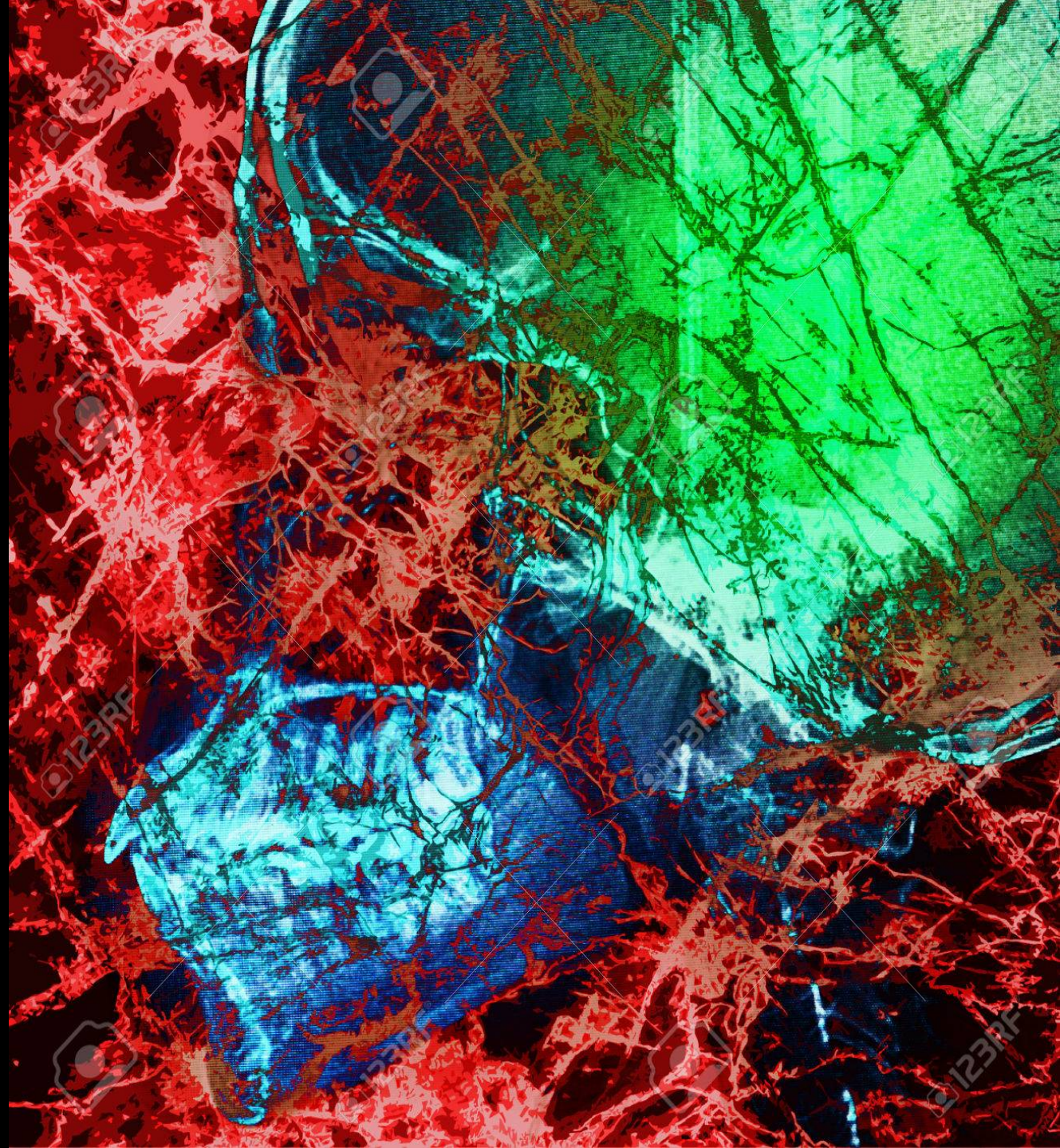
Double exposure results when the receptor is exposed twice, and two images appear superimposed onto each other. This error results in two errors; one receptor that was double-exposed and another that was not exposed at all. Double exposure of rigid digital receptors is not possible, but **phosphor plate receptors can be double-exposed just like film.**

X-rays are a form photoluminescence, in regards to luminescence.

https://www.dentalcare.com/en-us/ce-courses/ce559/miscellaneous-errors

https://appliedradiology.com/articles/artifacts-and-misadventures-in-digital-radiography

https://www.123rf.com/photo_40254013_pathogen-abstract-with-x-ray-film-background-on-double-exposure-scene.html



X-RAY DOUBLE EXPOSURE, SUBURBIA:

HTTPS://S.MJ.RUN/8N2JKWZLRRG X-RAY DOUBLE EXPOSURE OF A WOMAN IN BATHROOM CRADLING AN ALIEN CHILD IMBUED WITH MAGICAL POWERS, OVER THE SHOULDER VIEW, STYLE OF GREGORY CREWDSON, SOLARGRAM, KODAK AEROCHROME, DUTCH ANGLE, EXTREME CLOSE-UP, CERULEAN FLAMES --AR 2:1 --SEED 1546238275 --W 3000 --STYLIZE 1000 --CHAOS 100 **[MIDJOURNEY 5.2]**

X-RAY DOUBLE EXPOSURE, SUBURBIA:

X-RAY DOUBLE EXPOSURE OF A HOUSEWIFE WITH FLAMING CABLES CONNECTED FROM HER HEAD TO THE CEILING, UPSHOT, STYLE OF GREGORY CREWDSON, SOLARGRAM, KODAK AEROCHROME, DUTCH ANGLE, EXTREME CLOSE-UP, CERULEAN FLAMES --AR 1:2 **[MIDJOURNEY 5.2]**

What is laser scanning confocal microscopy?

Laser scanning confocal microscopy (LSCM), is an optical imaging technique for increasing optical resolution and contrast of a micrograph by means of using a spatial pinhole to block out-of-focus light in image formation. Capturing multiple two-dimensional images at different depths in a sample enables the reconstruction of three-dimensional structures (a process known as optical sectioning) within an object. This technique is used extensively in the scientific and industrial communities and typical applications are in life sciences, semiconductor inspection and materials science. Light travels through the sample under a conventional microscope as far into the specimen as it can penetrate, while a confocal microscope only focuses a smaller beam of light at one narrow depth level at a time. The CLSM achieves a controlled and highly limited depth of field.

A confocal microscope uses point illumination and a pinhole in an optically conjugate plane in front of the detector to eliminate out-of-focus signal – the name "confocal" stems from this configuration.

Laser scanning confocal microscopy is a type of fluorescence, in regards to luminescence.

https://en.wikipedia.org/wiki/Confocal_microscopy
https://www.nbcnews.com/science/science-news/life-magnified-shows-wonders-cell-n123891
https://www.cerclemagazine.com/en/magazine/articles-magazine/dr-siwanowicz-troubling-pictures/

LSCM, MATERIALS AND LIGHTING TEST:

DETAILED SURFACE OF A BUTTERFLY WING, SUBSURFACE SCATTERING, **CONFOCAL LASER SCANNING MICROSCOPE** --AR 2:1 **[MIDJOURNEY 5.2]**

LCSM, MATERIALS AND LIGHTING TEST:

WHITE PAPER TORN IN CONSTRUCTIVIST SHAPES REVEALING TORMENTED WOMAN, STYLE OF JENNY SAVILLE, EXTREME CLOSE-UP, **CONFOCAL LASER SCANNING MICROSCOPE,** ELECTROLUMINESCENCE, RAINBOW EXTRACTION, FRANZ KLINE, DIEBENKORN, --AR 2:1 **[MIDJOURNEY 5.2]**

LSCM, THE ART OF PURPOSEFUL COINCIDENCE:

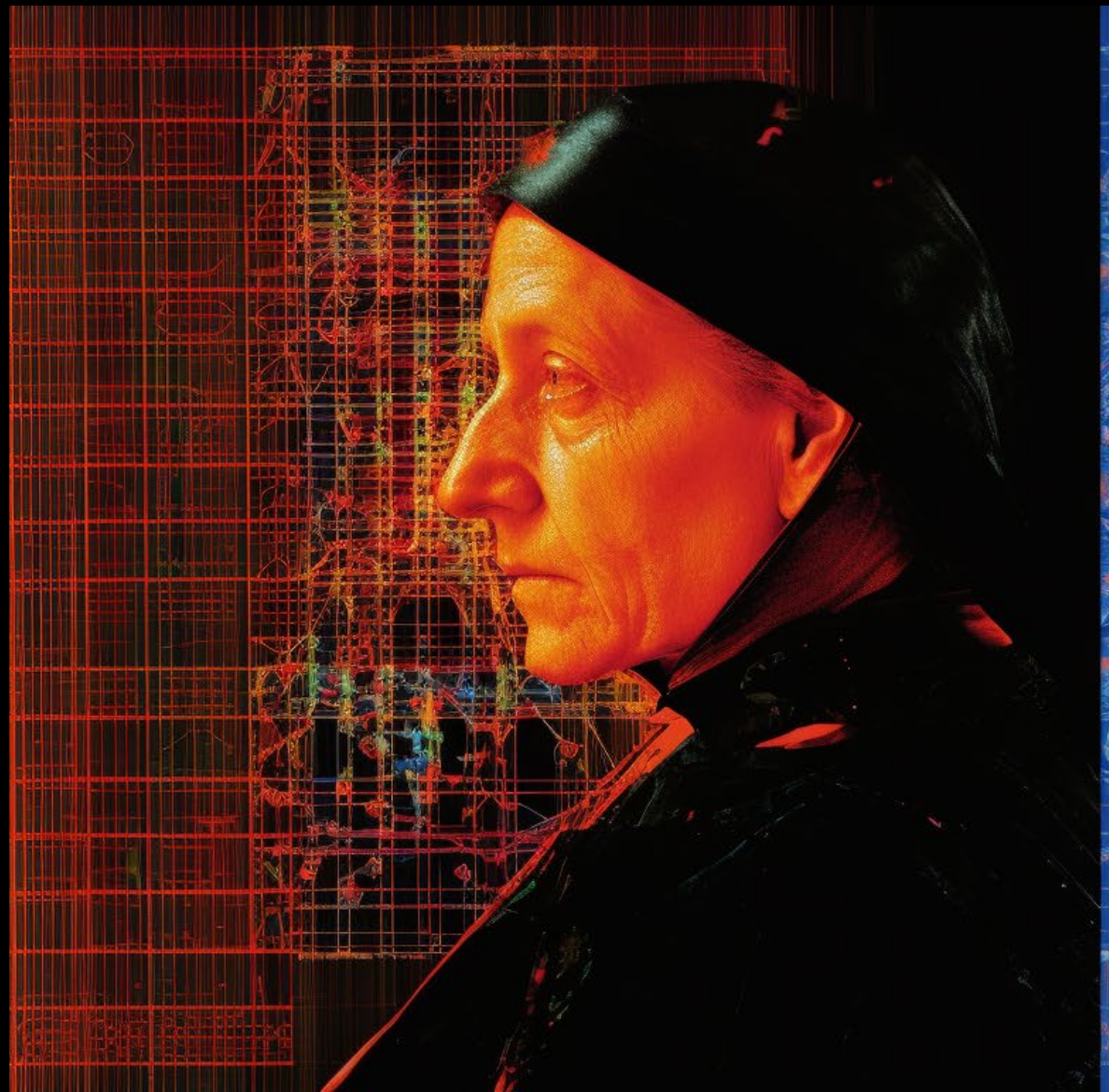
CONFOCAL LASER SCANNING MICROSCOPE, WHITE PAPER TORN IN CONSTRUCTIVIST SHAPES EMERGING 2D TO 3D REVEALING ECSTASY OF ST. TERESA CONTAINED IN KARA WALKER SILHOUETTES, GREEN FLAMES, ELECTROLUMINESCENCE, RAINBOW EXTRACTION, FRANZ KLINE, DIEBENKORN, HOLOGRAPHIC SGRAFFITO, HAUNTING EBAUCHE OF FRACTAL ANGELS, TENEBRIST LIGHTING --AR 2:1 **[MIDJOURNEY 5.2]**

LSCM, HAMMER OF GOD:

FUTURISTIC ONYX CATHEDRAL TRANSFORMING INTO EXTRUDED DE STIJL LAYERS, FIBER OPTICS + BURNING CABLES THAT RECONSTITUTE INTO A SATELLITE, SYD MEAD STYLE, CONTRE JOUR, BLUE BURNING CIRCUITS, FRACTURED DIMENSIONAL MOTION BLUR, MULTIPLE EXPOSURE, RAY TRACING, STYLE OF TRON, ELYSIUM, AND SPEED RACER, **CONFOCAL SCANNING ELECTRON MICROSCOPY** --AR 2:1 **[MIDJOURNEY 5.2]**

LSCM, HAMMER OF GOD:

FRANCIS BACON AND PAULA SCHER STYLE, DESICCATED NUN MADE OF EXTRUDED HOLOGRAPHIC CHLADNI PLATES, FIERY BLUE BOUQUET, CONTRE-JOUR, EXTRUDED FIBER OPTICS, STATIONS OF THE CROSS, LINOCUT, EMULSION PRINT, **CONFOCAL SCANNING MICROSCOPE** --AR 2:1 **[MIDJOURNEY 5.2]**



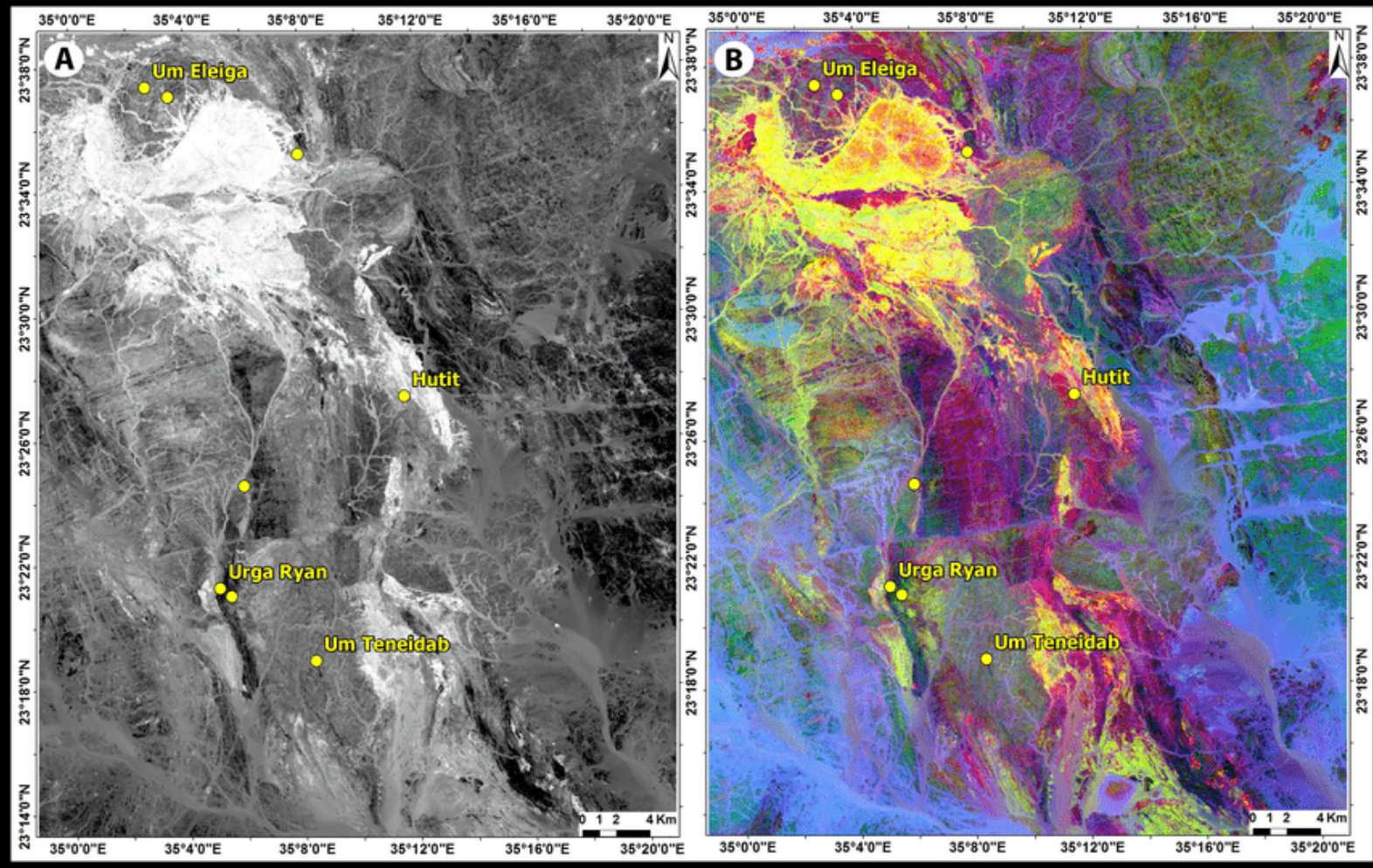
What is infared and thermal luminescence?

Luminescence occurs in some minerals when they are exposed to low-powered sources of ultraviolet or **infrared electromagnetic radiation** (for example, portable UV lamps) at atmospheric pressure and atmospheric temperatures. This property of these minerals can be used during the process of mineral identification at rock outcrops in the field or in the laboratory. Bismuth (Bi)-doped materials are capable of exhibiting broadband near-infrared (NIR) luminescence

Thermoluminescence is a form of luminescence that is exhibited by certain crystalline materials, such as some minerals, when previously absorbed energy from electromagnetic radiation or other ionizing radiation is re-emitted as light upon heating of the material. The phenomenon is distinct from that of black-body radiation.

Both of these types of luminescence are measured by Landsat-8 and Landsat-9 Earth observation satellites.

https://en.wikipedia.org/wiki/Thermoluminescence



Spectral discrimination of ophiolitic rocks by a processed Landsat-8 OLI scene of the study area.

LANDSAT-9, BAYEUX TAPESTRY SERIES:

PALIMPSEST OF COLORED THREADS, VIGNETTING, AEROCHROME, STYLE OF DEKOONING, GRAPHICAL ARRAYS OF ELECTROLUMINISCENT FIBER OPTICS, JEREMY BLAKELY, CONFOCAL SCANNING MICROSCOPY, ELECTROLUMINESCENSE, **LANDSAT 9 SATTELITE FALSE COLOR IMAGE** --AR 2:1 **[MIDJOURNEY 5.2]**

LANDSAT-9, BAYEUX TAPESTRY SERIES:

COUNT UGILINO'S FACE FORMED BY TRANSPARENT HOLOGRAPHIC GIRIH TILES, AEROCHROME, STYLE OF CEZANNE AND BRONZINO, WHITE PAPER TORN IN CONSTRUCTIVIST SHAPES REVEALING NORMAN KNIGHT, EXTREME CLOSE-UP, CONFOCAL LASER SCANNING MICROSCOPE, DIMENSIONAL APPLIQUÉ, BARGELLO INTERPOLATING BLUE TO GREEN, **LANDSAT 9 SATELLITE FALSE COLOR IMAGE** --AR 2:1 **[MIDJOURNEY NIJI 5]**

LANDSAT-9, BAYEUX TAPESTRY SERIES:

HENRY THE 8TH IN THE BAYEUX TAPESTRY MADE UP OF COLORED HOLOGRAPHIC PENROSE TILES, AEROCHROME, STYLE OF CEZANNE AND BRONZINO, WHITE PAPER TORN IN CONSTRUCTIVIST SHAPES REVEALING NORMAN KNIGHT, EXTREME CLOSE-UP, CONFOCAL LASER SCANNING MICROSCOPE, DIMENSIONAL APPLIQUÉ, BARGELLO INTERPOLATING BLUE TO GREEN, **LANDSAT 9 SATELLITE FALSE COLOR IMAGE** --AR 2:1 **[MIDJOURNEY 5.2]**

CONCLUSIONS:

ORDINARILY, I HAVE A CONCLUSIONS PAGE AT THE END OF EACH SECTION. THIS IS USUALLY BECAUSE THOSE SECTIONS HAVE MANY AREAS THAT NEED TO BE TESTED EXHAUSTIVELY IN ORDER TO BE VERIFIED. IN REGARDS TO LIGHT IN GENERAL, MOST GENERATIVE ART PROGRAMS ARE RECEPTIVE TO DESCRIPTORS FOR NATURAL LIGHT PHENOMENA, ARTIFICIAL LIGHT, EXPOSURES, COLORS AS THEY RELATE TO TEMPERATURE (THOUGH NOT NUMERICALLY), PRACTICAL PHOTOGRAPHY AND FILM LIGHTING TERMINOLOGY, CG LIGHTING TERMINOLOGY, EXOTIC VFX LIGHTING, AND PAINTING TECHNIQUES OF THE MASTERS THAT RELATE SPECIFICALLY TO LIGHTING. I DID VERY FEW RE-ROLLS (THE MOST WAS FOR GLOBAL ILLUMINATION AND FALLOFF) AND ON BALANCE, I FELT THAT THE RESULTS WERE NOT TOO FAR AFIELD WHAT WE SHOULD EXPECT OUTSIDE OF THE AI WORLD. IF YOU ARE NOT A TRADITIONAL ARTIST, PHOTOGRAPHER, OR FILMMAKER, A GREAT PLACE TO START IS **STUDIO BINDER.** YOU CAN GET THEIR CINEMATIC CHEAT SHEET IN PDF FORMAT HERE:

HTTPS://S.STUDIOBINDER.COM/WP-CONTENT/UPLOADS/2022/10/CINEMATIC-LIGHTING-CHEATSHEET.PDF

X-RAY DOUBLE EXPOSURE OF A MAN'S REFLECTION AS HE JUMPS OVER A MIRRORED PUDDLE, STYLE OF EDWARD HOPPER, SOLARGRAM, KODAK AEROCHROME --AR 2:1 **[MIDJOURNEY 5.2]**

ACKNOWLEDGMENTS:

MANY OF MY LIVE-ACTION PHOTOS TAKEN IN THIS SERIES CAN BE VIEWED AT **JAZNO.COM**. THANK YOU, **STUDIO BINDER SERIES**, WHICH CAN BE FOUND AT HTTPS://WWW.STUDIOBINDER.COM/BLOG (THE MOST COMPREHENSIVE REPOSITORY OF FILM AND PHOTOGRAPHY TUTORIALS ON THE WEB). AND OF COURSE, A NOD TO **WIKIPEDIA**, FOR PROVIDING A FAIR AMOUNT OF CONTENT/CONTEXT (ALL IMAGES AND TEXT HAVE BEEN ATTRIBUTED ON RESPECTIVE SLIDES, UNLESS CREATIVE COMMONS). AND THANKS TO **GIL ALTER** FROM THE **MIDJOURNEY: PROMPT TRICKS FORUM** FOR HIS INSPIRATIONAL RESEARCH.

The next lecture in this series is **Camera Basics for Generative Art VI**, where we will cover design and composition.