

Light painting photography and its application in visual (video) media

Turčić, Petra

Master's thesis / Diplomski rad

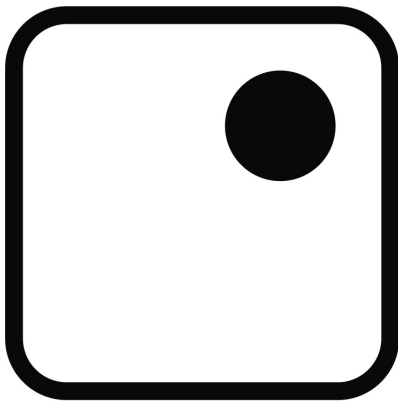
2015

Degree Grantor / Ustanova koja je dodijelila akademski / stručni stupanj: **University of Zagreb, Faculty of Graphic Arts / Sveučilište u Zagrebu, Grafički fakultet**

Permanent link / Trajna poveznica: <https://um.nsk.hr/um:nbn:hr:216:867956>

Rights / Prava: [In copyright](#) / [Zaštićeno autorskim pravom.](#)

Download date / Datum preuzimanja: **2024-12-02**



Repository / Repozitorij:

[Faculty of Graphic Arts Repository](#)



SVEUČILIŠTE U ZAGREBU
GRAFIČKI FAKULTET

PETRA TURČIĆ

LIGHT PAINTING PHOTOGRAPHY
AND IT'S APPLICATION IN VISUAL
(VIDEO) MEDIA

MASTER'S THESIS

Zagreb, 2015.



Sveučilište u Zagrebu
Grafički fakultet

PETRA TURČIĆ

**LIGHT PAINTING PHOTOGRAPHY AND
IT'S APPLICATION IN VISUAL (VIDEO)
MEDIA**

MASTER'S THESIS

Mentor:
dr. sc. Miroslav Mikota

Student:
Petra Turčić

Zagreb, 2015.

THANKS:

I would like to thank:

~ my mom and dad ~

You had so much patience through this period of my education.

~ my sisters ~

You girls were always willing to help me, thank you for standing still while the camera was taking a shoot. I know it wasn't easy, especially when the school is in the morning.

~ my grandma ~

Living with you changed me from a young teenage girl to an adult young woman. Thank you for teaching me how to have a garden.

~ my aunt and uncle ~

You helped me and encouraged me all the time.

~ love of my life ~ Kruno

Thank you for loving me and making me happy. Thank You for all of the nights spent making photography for this thesis.

~ friends ~

My dear Annie, your deep sentences and our long conversations, walking barefoot through the wood helped me to stay sane all the time.

Mateja, you inspire me. Thank you for letting me crash at your place all of the time.

Marko, we've been through a lot and you are a true friend.

Nix, thank you for giving me work to do for the present and the future times.

Ivana, you are a really good person. I'm glad to know you.

Thanks to all of my Aikido friends.

ABSTRACT

This graduate thesis presents and displays light painting technique and also shows its application through video media. Theoretical part of this thesis describes DSLR camera, presents history, components and settings, highlighting exact settings for light painting technique of photography. RGB colour model is also presented as it is the model in which DSLR camera works and those three colours (red, green and blue) are very important part of a conceptual framework. Defined are techniques of light painting (moving the object that is photographed, moving the camera while the object stands still) and additional equipment necessary for realisation of these photographs (photographical stand, different sources of light like fire, LED lamps, sparklers etc.). In theoretical part the video is presented as a part of multimedia. Named are some of the most famous softwares for creating videos, among which is Adobe Premiere Pro, the software in which the practical part of this thesis is created. Practical part of this seminar consists of personally made photographs presented through video media. That video presentation is accompanied with musical background. Each of the individual photography can be observed as individual artistic work and as conceptual story with theme and motives. Theme of this video presentation is expressed through the title: "Power of Light".

KEY WORDS

DSLR camera, light painting, settings, equipment, video media, photography, theme, motives, title

CONTENT

1. INTRODUCTION.....	1
2. THEORETICAL PART.....	2
2.1. DSLR/SLR CAMERA.....	2
2.1.1. About.....	2
2.1.2. History.....	2
2.1.3. Components.....	4
2.1.4. How it works.....	5
2.1.5. RGB (sRGB) color model.....	5
2.2. LIGHT PAINTING PHOTOGRAPHY.....	7
2.2.1. What is light painting photography.....	7
2.2.2. History of light painting photography.....	7
2.2.3. Equipment ~ light painting kit.....	10
2.2.4. Methods.....	11
2.2.5. Setup and shooting.....	12
2.3. VIDEO IN MULTIMEDIA.....	13
2.3.1. Basic informations.....	13
2.3.2. History.....	13
2.3.3. Softwares.....	14
2.3.3.1. AVS Video Editor.....	14
2.3.3.2. Lightworks.....	15
2.3.3.3. Sony Vegas Movie Studio.....	16

2.3.3.4. Cinelerra.....	17
2.3.3.5. iMovie.....	17
2.3.3.6. Pitivi.....	18
2.3.3.7. Adobe Premiere Pro.....	19
2.3.3.8. Kdenlife.....	19
2.3.3.9. Windows Movie Maker.....	20
3. EXPERIMENTAL/PRACTICAL PART.....	21
3.1.MAKING OF A VIDEO.....	21
3.1.1. Conceptual Framework.....	21
3.1.2. Planing of motives and scens.....	23
3.1.3. Making of photography.....	25
3.1.4. Making of a video sequence.....	26
3.1.5. Exportation.....	27
3.1.6. Uploading.....	28
4. RESULTS AND DISCUSION.....	29
5. CONCLUSIONS.....	30
6. LITERATURE.....	31

1. INTRODUCTION

Photography today is the most frequent visual media on graphical products. To attract attention, nowadays it seeks for new approach and new techniques of making photography among which is light painting technique. Photography is very strong media exactly because of its multimedial and mixmedial presentation. Photography, as well as light painting photography, as a media of statical, fixed photography can be foundation of video as mobile photography, and at the same time each individual photo can functionate as independent photo. Purpose of this thesis is to show technique of light painting through personal work and to explore the possibility of presentation of photos through video media.

A DSLR camera and its history is presented. Manufacturers and components of which a camera is compound is explored. The term of light painting photography is explained and most famous light painting artist are presented. Equipment needed, methods, setup and shooting are also presented. The final thing that is explained in theoretical part of thesis is the video as a part of multimedial content. There are shown some of the most famous software that can be used for creation of a personal video. Practical part of this thesis starts with conceptual framework and continues with planing of motives and scenes. That is followed by making photography of different motives with different settings which demands different composition. After the shooting it is necessary to make the selection of high-quality photos that can fit into a video sequence. Montage of a video sequence is created using Adobe Premiere Pro software. After the sequence is created, rendering and exportation must be done. The exportation is made in a way to fit the needs of Youtube channel for high quality presentation.

2. THEORETICAL PART

2.1.DSLR/SLR CAMERA

2.1.1. About

A digital single-lens reflex camera (also called a digital SLR or DSLR) is a digital camera combining the optics and the mechanisms of a single-lens reflex camera with a digital imaging sensor. The reflex design scheme is the primary difference between a DSLR and other digital cameras. In the reflex design, light travels through the lens, then to a mirror that alternates to send the image to either the viewfinder or the image sensor. The alternative would be to have a viewfinder with its own lens, hence the term "single lens" for this design. By using only one lens, the viewfinder presents an image that is not perceptibly differ from what is captured by the camera's sensor. [1]

2.1.2. History

DSLRs largely replaced film-based SLRs during the 2000s, and despite the rising popularity of mirrorless system cameras in the early 2010s, DSLRs remained the most common type of interchangeable lens camera in use as of 2014. [1]

By the late 1980s, the technology required to produce truly commercial digital cameras existed. The first true portable digital camera that recorded images as a computerized file was likely the Fuji DS-1P of 1988, which recorded to a 16 MB internal memory card that used a battery to keep the data in memory. This camera was never marketed in the United States, and has not been confirmed to have shipped even in Japan. [1]

The first digital camera of any kind ever sold commercially was possibly the MegaVision Tessera in 1987 though there is not extensive documentation of its sale known. The first portable digital camera that was actually marketed commercially was sold in December 1989 in Japan, the DS-X by Fuji. [1] The first commercially available portable digital camera in the United States was the Dycam Model 1, first shipped in

November 1990. It was originally a commercial failure because it was black and white, low in resolution, and cost nearly \$1,000 (about \$2000 in 2014). It later saw modest success when it was re-sold as the Logitech Fotoman in 1992. It used a CCD image sensor, stored pictures digitally, and connected directly to a computer for download. [1]

In 1991, Kodak brought to market the Kodak DCS-100, the beginning of a long line of professional Kodak DCS SLR cameras that were based in part on film bodies, often Nikons. It used a 1.3 megapixel sensor, had a bulky external digital storage system and was priced at \$13,000. [1]

The move to digital formats was helped by the formation of the first JPEG and MPEG standards in 1988, which allowed image and video files to be compressed for storage. The first consumer camera with a liquid crystal display on the back was the Casio QV-10 developed by a team lead by Hiroyuki Suetaka in 1995. The first camera to use CompactFlash was the Kodak DC-25 in 1996. The first camera that offered the ability to record video clips may have been the Ricoh RDC-1 in 1995. [1]

In 1995 Minolta introduced the RD-175, which was based on the Minolta 500si SLR with a splitter and three independent CCDs. This combination delivered 1.75M pixels. The benefit of using an SLR base was the ability to use any existing Minolta AF mount lens. 1999 saw the introduction of the Nikon D1, a 2.74 megapixel camera that was the first digital SLR developed entirely from the ground up by a major manufacturer, and at a cost of under \$6,000 at introduction was affordable by professional photographers and high-end consumers. This camera also used Nikon F-mount lenses, which meant film photographers could use many of the same lenses they already owned. [1]

Digital camera sales continued to flourish, driven by technology advances. The digital market segmented into different categories, Compact Digital Still Cameras, Bridge Cameras, Mirrorless Compacts and Digital SLRs. One of the major technology advances was the development of CMOS sensors, which helped drive sensor costs low enough to enable the widespread adoption of camera phones. [1]

2.1.3. Components

The body is the housing for the camera. While it has little effect on the quality of the photos, it does affect things like ease of use and comfort. (*Image 1.*) [2]

The lens is the eye of the camera, and it's a very complex instrument. Different lenses can provide many different features, so it's important to know the differences between them. (*Image 1.*) [2]

The sensor is basically the digital equivalent of film, in the sense that—like film—the sensor is exposed to light that comes through the lens and it records that exposure. The exposure is then processed and saved to flash memory (generally an SD or Compact Flash card). The caliber and size of the sensor are also very important, as these things significantly impact the quality of the photos. (*Image 1.*) [2]

The flash card is where the camera saves images, and it's a component most people don't think about too much when buying a camera, aside from choosing an amount of storage that suits their needs. Flash cards range in read and write speeds as well, however, and a slow cards can significantly degrade the camera's performance (*Image 1.*) [2]

The battery matters in a camera just like any other electronic device. This is a simple part to understand, but it is important to handle the battery well so it can enable long time of shooting. The battery should be empty when putting it charging. (*Image 1.*) [2]



Image 1. Components of DSLR

2.1.4. How it works

- a) Light passes through the lens and strikes a mirror (green) (*Image 2.*) [1]
- b) The mirror reflects the light up to a focusing screen (*Image 2.*) [1]
- c) Light passes through the focusing screen and enters a block of glass called a pentaprism (orange) (*Image 2.*) [1]
- d) The pentaprism reflects the image so that you can see it in the viewfinder
- e) When you take a photo, the mirror flips up and a shutter (blue) opens that exposes the digital sensor (red) to light (*Image 2.*) [1]

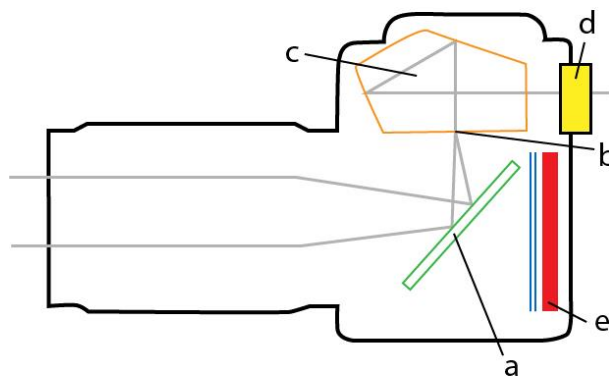


Image 2. How a DSLR camera works

2.1.5. RGB (sRGB) color model

The RGB color model is an additive color model in which red, green, and blue light are added together in various ways to reproduce a broad array of colors. The name of the model comes from the initials of the three additive primary colors, red, green, and blue. (*Image 3.*) [3]

The main purpose of the RGB color model is for the sensing, representation, and display of images in electronic systems, such as televisions and computers, though it has

also been used in conventional photography. Before the electronic age, the RGB color model already had a solid theory behind it, based in human perception of colors. [3]

RGB is a *device-dependent* color model: different devices detect or reproduce a given RGB value differently, since the color elements (such as phosphors or dyes) and their response to the individual R, G, and B levels vary from manufacturer to manufacturer, or even in the same device over time. Thus an RGB value does not define the same *color* across devices without some kind of color management. [3]

Typical RGB input devices are color TV and video cameras, image scanners, video games, and digital cameras. Typical RGB output devices are TV sets of various technologies (CRT, LCD, plasma, etc.), computer and mobile phone displays, video projectors, multicolor LED displays, and large screens such as JumboTron. Color printers, on the other hand, are not RGB devices, but subtractive color devices (typically CMYK color model). [3]

Photographic digital cameras that use a CMOS or CCD image sensor often operate with some variation of the RGB model. In a Bayer filter arrangement, green is given twice as many detectors as red and blue (ratio 1:2:1) in order to achieve higher luminance resolution than chrominance resolution. The sensor has a grid of red, green, and blue detectors arranged so that the first row is RGRGRGRG, the next is GBGBGBGB, and that sequence is repeated in subsequent rows. For every channel, missing pixels are obtained by interpolation in the demosaicing process to build up the complete image. Also, other processes used to be applied in order to map the camera RGB measurements into a standard RGB color space as sRGB. (*Image 3.*)[3]

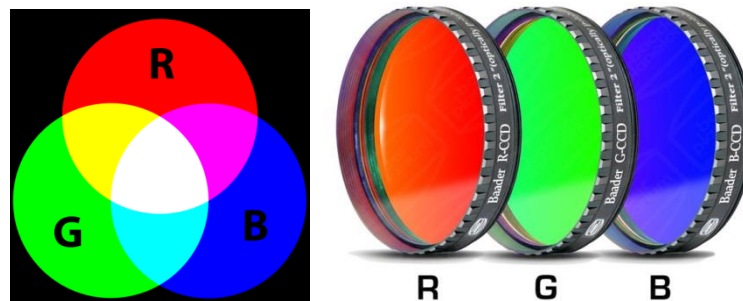


Image 3. RGB colour model

<http://tienda.lunatico.es/RGB-Baader-2-filter-set>

2.2. LIGHT PAINTING PHOTOGRAPHY

2.2.1. What is light painting photography

Light painting is a photography technique which uses long exposures to create magical images in dark spaces. It uses light source of any kind to be the brush for one's personal digital painting. [4]

Light painting photography is also known as light painting, light drawing, light writing, light graffiti, light art, light art performance photography, LAPP, camera painting, and kinetic photography.[4]

In Light Painting Photography the artist is leaving the shutter of the camera open for an extended period of time and using various lights to create color and design within the frame. Shutter speeds for light paintings can vary anywhere from a second up to 30 seconds, all depending on a digital camera of the artist.

Patterns, words, drawings can be created using this technique but also it can highlight certain subjects or objects. [4]

2.2.2. History of light painting photography

Light painting, more specifically light drawing, dates back to 1889 when Étienne-Jules Marey and Georges Demeny created the first known light painting “Pathological Walk From in Front”. (*Image 4.*) [5]

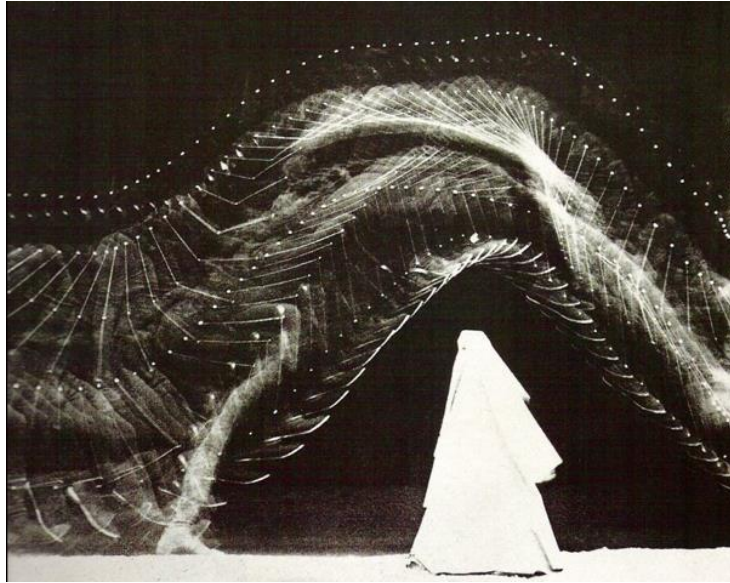


Image 4. Étienne-Jules Marey, Georges Demeny :
“Pathological Walk From in Front” [5]

In 1949 Pablo Picasso was visited by Gjon Mili, a photographer and lighting innovator, who introduced Picasso to his photographs of ice skaters with lights attached to their skates. Immediately Picasso started making images in the air with a small flashlight in a dark room. This series of photos became known as Picasso's "light drawings." Of these photos, the most celebrated and famous is known as "Picasso draws a Centaur".

(Image 5.) [5]

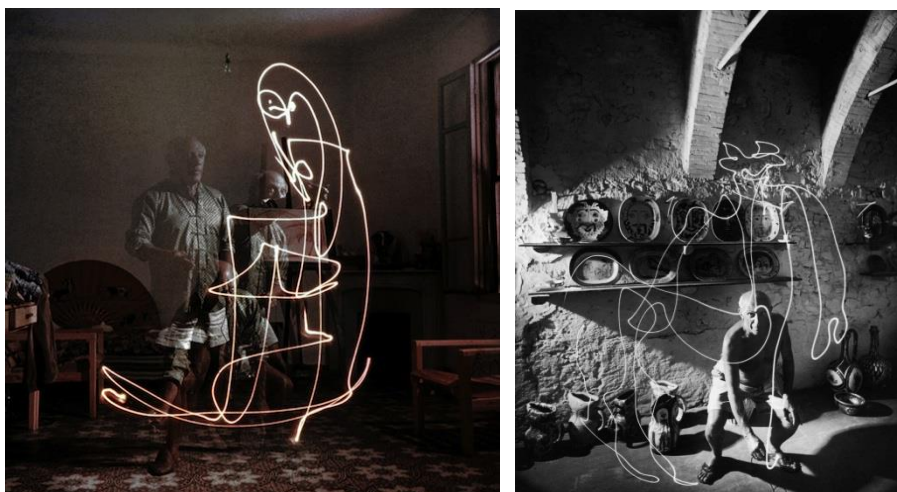


Image 5. Pablo Picasso painting with light [5]

During the 1970s and 80's Eric Staller used this technology for numerous photo projects that were called "Light Drawings". (*Image 6.*) [5]



Image 6. Eric Staller's light paintings [5]

Light paintings up to 1976 are classified as light drawings. In 1977 Dean Chamberlain gave birth to light painting (using handheld lights to selectively illuminate and/or color parts of the subject or scene) with his image "Polyethylene Bags On Chaise Longue" at The Rochester Institute of Technology. Dean Chamberlain was the first artist to dedicate his entire body of work to the light painting art form. (*Image 7.*) [5]



Image 7. Dean Chamberlain's art with light [5]

The artist photographer Jacques Pugin made several series of images with the light drawing technique in 1979. Picasso and Mili's images should be regarded as some of the first light drawings. Now, with modern light painting, one uses more frequently choreography and performance to photograph and organize. [5]

In the 1970s and early 1980s, Steve Mann invented, designed, built, and used various wearable computers to visualize real-world phenomena such as sound waves, radio waves, and sight fields by light painting using computational photography.

This artform enjoyed a surge in popularity in the 21st century, partly due to the increasing availability of dSLR cameras, advances in portable light sources such as LEDs, and also in part due to the advent of media sharing websites by which practitioners can exchange images and ideas. [5]

2.2.3. Equipment ~ light painting kit

ESSENTIAL

- Light source – sparklers, glow sticks, torches, mobile phones, LED lights
- Digital camera – a camera where you can adjust the shutter speed, a Pentax k-30 is used in practical part of this thesis [6]

GOOD TO HAVE

- Coloured filters – filters made out of colored papers that can be put onto white LED light source to change the colour of light. In this thesis Red, Green and Blue filters are used. [6]
- Tripod – the long exposure means the camera must stay still so that the images don't get blurry don't get blurry. Camera can be placed on a stable surface like a table but a tripod is much easier to move around. [6]
- Shutter release remote control – to eliminate camera shake and 'click' when you are away from the camera. Self-timer is also good way to control the starting time of exposure. [6]
- At least one friend to tag along.

2.2.4. Methods

There are two main ways to make a light painting:

1. Use a sparkler, glow stick or some other light source to ‘draw’ images.

(*Image 8.*) [6]



Image 8. Spark in a Sea

2. Use a lamp or some other light source that is still and moving the camera in wanted directions. (*Image 9.*) [6]



Image 9. Sinishaa dancing

Both can be used in combination with long exposure to make striking images in the dark.

2.2.5. Setup and shooting

There are certain conditions that must be satisfied to create light painting photography. First, it needs to be dark in the room or on the place where the photography is taken. Creating the setup begins. Digital camera is placed on a tripod or a stable surface. Then the camera is turned on and the settings are adjusted to specific needs of certain photography. [7]

ISO value is always set to the lowest (100 or 200) depending on a camera.

Manual mode or BULB should be used for exposure. That way the camera is not trying to guess the correct exposure. For exposures longer than 30 seconds (30" on a camera) the BULB mode should be used because the most digital camera's exposures on a manual mode has 30 seconds for their maximum. Also, when the exposure time needs to be precise in a second (usually when there's no possibility to turn off the light source eg. when using sparkles) BULB mode is suitable. [7]

After the setup is done, the camera on the tripod is placed on the spot where it gets the best frame of photography.

It is best to make concept for the photography earlier. The light/lights are turned on and the shooting begins. This is the most interesting and artistic part of this digital photography technique because there is always a moment of surprise. Every photography an author will take is personal and exciting. (*Image 10.*) [7]

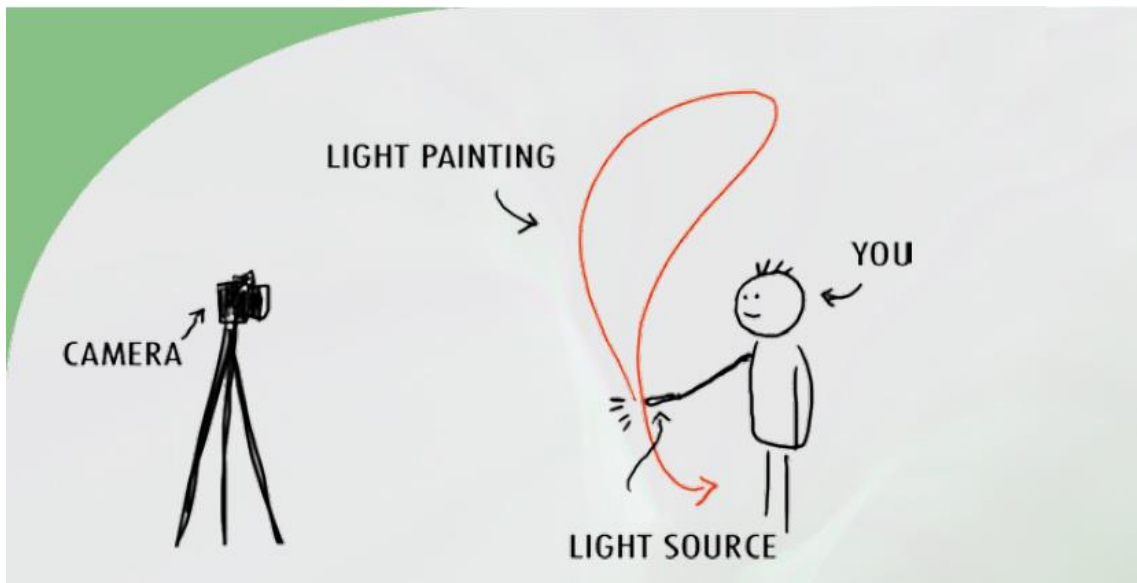


Image 10. Light painting setup and shooting scheme [7]

2.3. VIDEO IN MULTIMEDIA

2.3.1. Basic informations

Video is an electronic medium for the recording, copying, playback, broadcasting, and display of moving visual media. Multimedia refers to content that uses a combination of different content forms. Multimedia can include a combination of text, audio, still images, animation, video, or interactive content forms. [8]

Video as multimedial element has become an integral part of our life. It finds its application in various areas including, but not limited to, advertisements, art, education, entertainment, engineering, medicine, business etc. [8]

2.3.2. History

Video technology was first developed for cathode ray tube (CRT) television systems, but several new technologies for video display devices have since been invented. Charles Ginsburg led an Ampex research team developing one of the first practical video tape recorder (VTR). In 1951 the first video tape recorder captured live

images from television cameras by converting the camera's electrical impulses and saving the information onto magnetic video tape. [8]

Video recorders were sold for \$50,000 in 1956, and videotapes cost \$300 per one-hour reel. However, prices gradually dropped over the years; in 1971, Sony began selling videocassette recorder (VCR) decks and tapes to the public.

The use of digital techniques in video created digital video, which allowed higher quality and, eventually, much lower cost than earlier analog technology. After the invention of the DVD in 1997 and Blu-ray Disc in 2006, sales of videotape and recording equipment plummeted.[8] Advances in computer technology allowed even inexpensive personal computers to capture, store, edit and transmit digital video, further reducing the cost of video production, allowing program-makers and broadcasters to move to tapeless production. The advent of digital broadcasting and the subsequent process of digital television transition is in the process of relegating analog video to the status of a legacy technology in most parts of the world. As of 2015, with the increasing use of high-resolution video cameras with improved dynamic range and color gamuts, and high-dynamic-range digital intermediate data formats with improved color depth, modern digital video technology is slowly converging with digital film technology. [8]

2.3.3. Software

Nowdays there are a lot of software that enable us to create video out of filmed sceens or photography shoots. Presented are most famous softwares.

2.3.3.1. AVS Video Editor

AVS Video Editor is easy to use, professional-quality-rich & quick video editor for Windows computers. AVS Video Editor, developed by Online Media Technologies, offers a number of notable features such as a huge amount of effects, support for Blu-ray videos, multilingual support, ability to share videos directly through platforms like Facebook, Flick and MySpace and useful features such as stabilization.AVS Video Editor is one of the best video editing software for Windows. (*Image 11.*) [9]

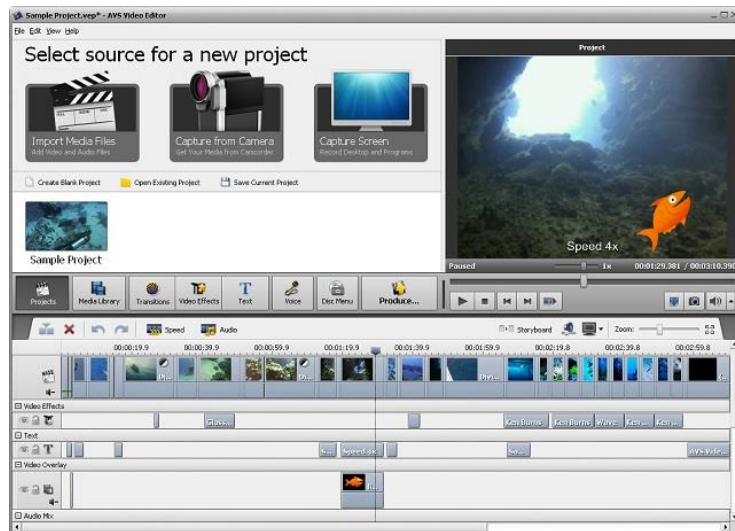


Image 11. AVS Video Editor [9]

2.3.3.2. Lightworks

Lightworks is the only video editor that does have support for Microsoft Windows, OS X and Linux. Some un-matchable features of Lightworks include dedicated & powerful support for background I/O, dedicated keyboard to enhance video editing experience, multi-cam editing as well as an impressive set of realtime effects that will come in handy when it comes to professional video editing. The list of features also includes dedicated web export option, background export, import and rendering etc. (Image 12.) [9]

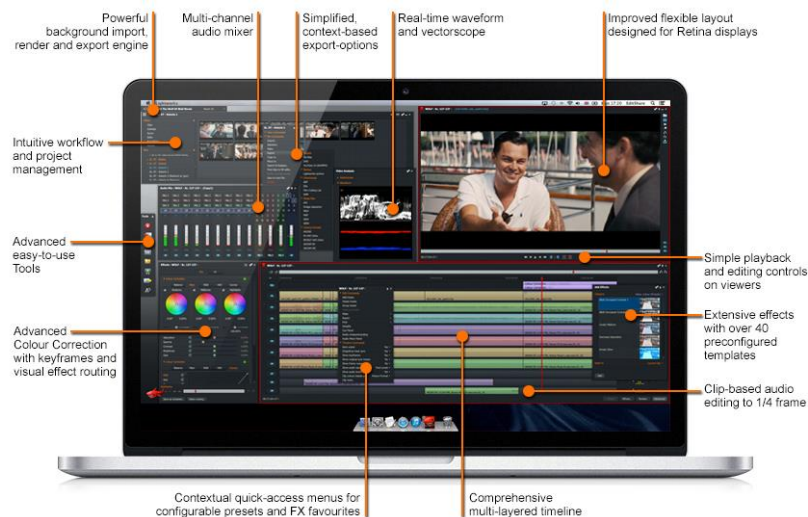


Image 12. Lightworks [9]

2.3.3.3. Sony Vegas Movie Studio

For creating stunning videos without consuming that much system resources, Sony Vegas Movie Studio will, most probably, be the best tool for Windows PCs. Sony Vegas Movie Studio is actually the minimized version of Sony Vegas Pro and it is meant for passionate professionals, who would find the simple interface, variety of features along with support for additional elements such as transitions, text, video stabilization, realtime effects etc. Altogether, its features make Sony Vegas Movie Studio an all-in-one solution for professionals who do not want to spend much money.

(Image 13.) [9]



Image 13. Sony Vega Movie Studio [9]

2.3.3.4. Cinelerra

Cinelerra is a video editing tool that lets Linux users edit videos in an intuitive manner that no previous experience is required. Written in C++, Cinelerra offers powerful features that are quite simplified by means of the simple UI it has. You can download Cinelerra for almost every Linux distribution and the tool will be quite useful, we bet. UI Cinelerra has three sections that help editors do their job neatly — Timeline, Viewer, Resource Window and Compositor. (Image 14.) [9]



Image 14. Cinelerra [9]

2.3.3.5. iMovie

iMovie is popular and immensely used video editor for Macintosh devices, which comes from Apple Inc. Being a tool from Apple Inc, iMovie can help deal with video editing even while using an iOS-based device — iPhone, iPod or iPad. Although iMovie has a tremendous number of features, some of those include truly impressive collection of transitions, drag-based interface, iMovie Theatre that enable watching movies from an Apple TV, ability to fine tune clips etc. (*Image 15.*) [9]



Image 15. iMovie [9]

2.3.3.6. Pitivi

Pitivi is an open-source video editing software that is available for Linux-based devices and it offers an intuitive UI (user interface). Although Pitivi offers more than enough features for all video editors, some of notable ones are simple yet effective video editing capabilities, hundreds of transitions, filters and effects, availability in multiple languages, precision-based video editing etc. (*Image 16.*) [9]



Image 16. Pitivi [9]

2.3.3.7. Adobe Premiere Pro

Adobe Premier Pro is an immensely-popular, timeline-based video editing software application that is available for Windows and Mac. It is part of the Adobe Creative Cloud, which includes video editing, graphic design, and web development programs. It has simple-to-use interface and enable creating a video out of clips or photography. In this software application the practical part of this thesis will be done. (*Image 17.*) [10]



Image 17. Adobe Premiere Pro

https://upload.wikimedia.org/wikipedia/commons/5/58/Adobe_Premiere_Pro_CS6_Ico_n.png

2.3.3.8. Kdenlive

Kdenlive, built on MLT Framework, is a great solution when looking for an open-source video editing software that makes sense. Available for Linux, FreeBSD and Mac OS X, Kdenlive offers impressive features that are impressive when it comes to preparing stunning video results. Some other features of Kdenlive include rendering that can be paused according to one's need, ability to apply special transition effects, multi-track editing feature etc. (*Image 18.*) [9]



Image 18. Kdenlive [9]

2.3.3.9. Windows Movie Maker

Windows Movie Maker is a freeware video editing software by Microsoft. It is a part of Windows Essentials software suite and offers the ability to create and edit videos as well as to publish them on OneDrive, Facebook, Vimeo, YouTube, and Flickr. Although simple, Windows Movie Maker can come in handy when creating videos without using that much of system resources. Through its ultra-simple User Interface, Windows Movie Maker will help add transitions, set up tracks and export the video into a Windows-compatible media format. (Image 19.) [9]

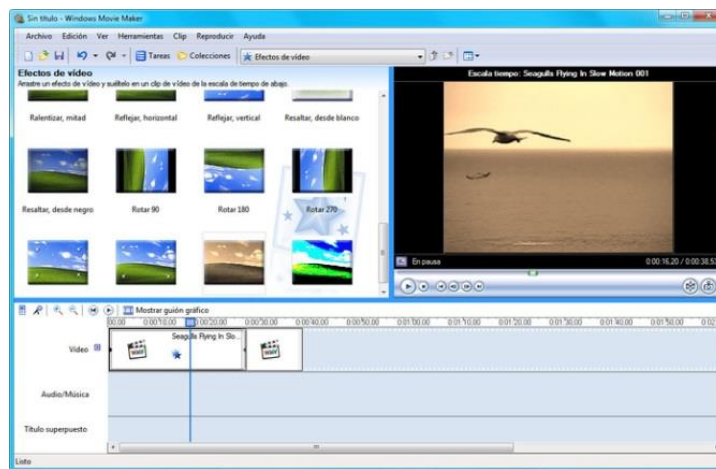


Image 19. Windows Movie Maker [9]

3. EXPERIMENTAL / PRACTICAL PART

3.1. MAKING OF A VIDEO

3.1.1. Conceptual framework

Conceptual framework is a logical process whereby new informations can be generated. A fundamental requirement of conceptual framework is to define clearly the direction of the study. It works like a mind map that sets the direction of research or thesis writing. Presentations of this framework is made with a help of infographic chart or a diagram. [11] Infographic (information graphic) is visual representation of several informations, data or knowledge intended to present it quickly and clearly. In some literature it can also be called information visualisation, data visualisation, information design, information architecture. Infographics are presented through charts, diagrams, pies etc. [12] Presented is an infographic chart that can help to visualise the concept of the video sequence. A video photography slideshow will be created out of light painting photographs that are following this concept named "*Power of Light*".
(Image 20.)

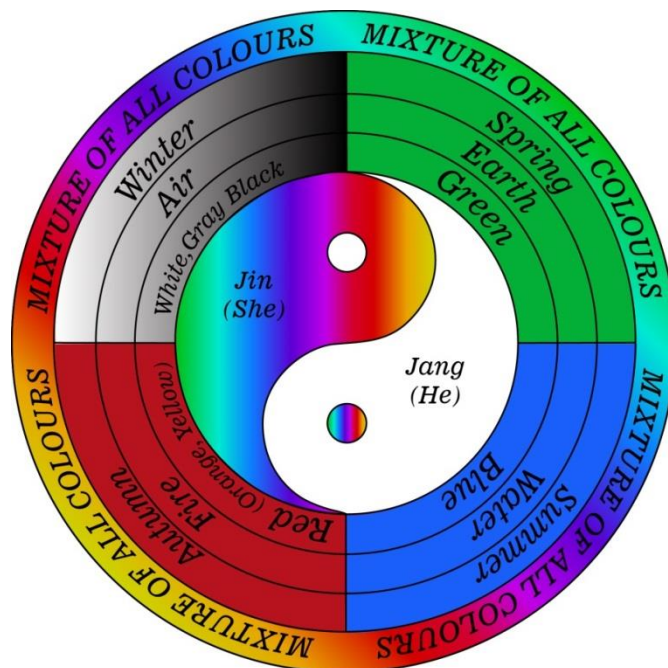


Image 20. "Power of Light" chart

As shown there is one main circle with a *jin-jang* symbol. In Chinese philosophy, *jin* and *jang* describes how apparently opposite or contrary forces are actually complementary, interconnected, and interdependent in the natural world, and how they give rise to each other as they interrelate to one another. Many tangible dualities (such as light and dark, day and night, male and female, expanding and contracting) are thought of as physical manifestations of the duality symbolized by yin and yang. In shown chart the meaning is chosen to represent male and female vibrant energy. It is coloured in the spectrum of light choosing a meaning of bright, positive energy.

Jin-Jang symbol is connected to four rings.

First ring represents RGB (Red, Green and Blue) colour model with extended colour spectrum of red colour (through orange to yellow). It also contains Black and White (B/W) gradient which consists out of monochrome colours.

Second ring represent four classical elements: earth, water, fire and air.

Third ring presents 4 seasons: spring, summer, autumn and winter.

Fourth ring presents visible colour spectrum and it is connected to all other elements of the conceptual framework.

There are also four conceptual links visible in the chart and they connect specific colour, element and season.

First conceptual link connects green colour to an earth element and spring season.

Second conceptual link ties blue colour to a water element and summer season.

Third conceptual link joins red colour to a fire element and autumn season.

Fourth conceptual link combines white and gray colours with air and winter opposed to black that is always the background colour.

3.1.2. Planing of motives and scenes

Planing of motives and scenes in light painting photography is very important because it's significantly saving time that needs to be invested into a making of desired photography. Video slideshow that is presented at the end of this thesis is made out of many motives that are processed through conceptual variations. The video is enriched with a plenty of motives that follow up the conceptual framework and are connected to it's main theme. The main theme for this video is imagined to represent spirituality, concretely positive energy. That positive energy radiates out of every element of the chart (*Image 20.*).

Every conceptual link has it's own specific motives.

Green link's specific motives are spring grass, wild tree, wood fairy, mother earth, father pine and green mind.

Blue link's specific motives are water, summer sea, an ocean soul, freedom, blue cloud and rain drops.

Red link's specific motives are autumn leaves, fire, red heart, true love, sparkles and candle.

White link's specific motives are fresh air, white glow, winter snow, angel wings and ice.

Mixed colour circle's specific motives are the sun, the moon and energy ball.

The video ends with an inspirative sentence: "If you ever get lost in the darkness remember, you are the Power of Light."

Every link has motives that are named in the chart (*Image 20.*) and other free motives that fit specific colour.

Here are the examples of photography created for the first ring: (*Image 21.*)



Image 21. First ring

Here are the examples of photography created for the second ring: (*Image 22.*)



Image 22. Second ring

Here are the examples of photography created for the third ring: (*Image 23.*)



Image 23. Third ring

3.1.3. Making of photography

Photography for this video is made through a period of time, at various locations and climate conditions. This part of a process is mostly explained in theoretical part of this thesis, in the chapter 2.2.5. Setup and shooting. Creating photography is the most personal part of every conceptual photography project. It demands a lot of time and effort to make light painting photography because the author is always in the movement. Every photo taken has its personality and character.

After the shooting is done, a real work begins as it needs to sort out, retouch and combine all of the materials created the night before. In the video sequence that will be presented at the end of this thesis, some of the photography is made with the help of a photo manipulation technique. (*Image 24.*)

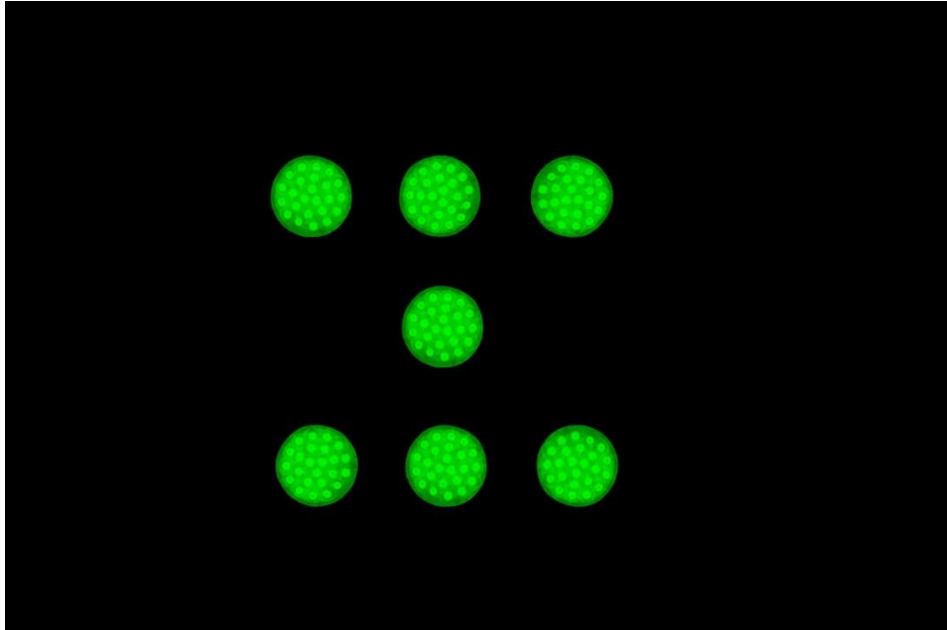


Image 24. Example of a photo manipulation technique

With the help of this technique desired images can be created to help the autor of the video to follow up with the story. For example, this specific example (Image 23.) is created as an introduction to the video sequence.

3.1.4. Video sequence making

Video sequence was made in Adobe Premiere Pro software. New project is created and title is defined: "Power of Light". First thing to do is to import chosen photography so the best way is to organise everything before starting of making a video sequence. After the photography is imported, video sequence is made picture by picture. Every picture should be scaled to framesize. Adobe Premiere Pro offers rich pallete of video effects and translations to help with the dynamic of the photography. (*Image 25.*)



Image 25. Video sequence making

3.2. Exportation

This video consists out of high quality photography so the exportation needs to be for a high quality video. To be able to do that, first the video sequence should be rendered (Sequence-Render Entire Work Area) and when that is processed than exportation begins. It is located under File-Export-Media. Then the export settings window shows up. This video is going to be uploaded on Youtube chanal, so the settings has to fit Youtube's needs to reach maximum quality. (Image 26.)

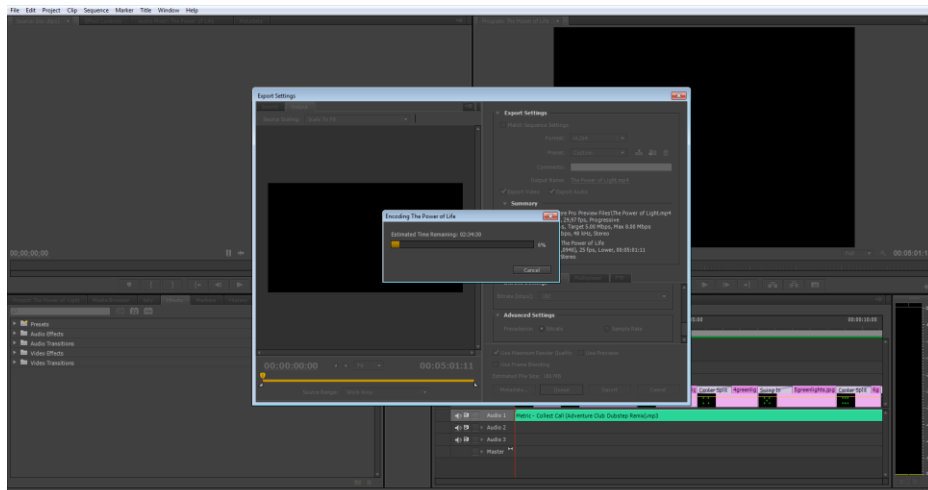


Image 26. Exportation settings

3.3. Uploading

For easier sharing of this video, the video is uploaded on Youtube. (*Image 27.*)

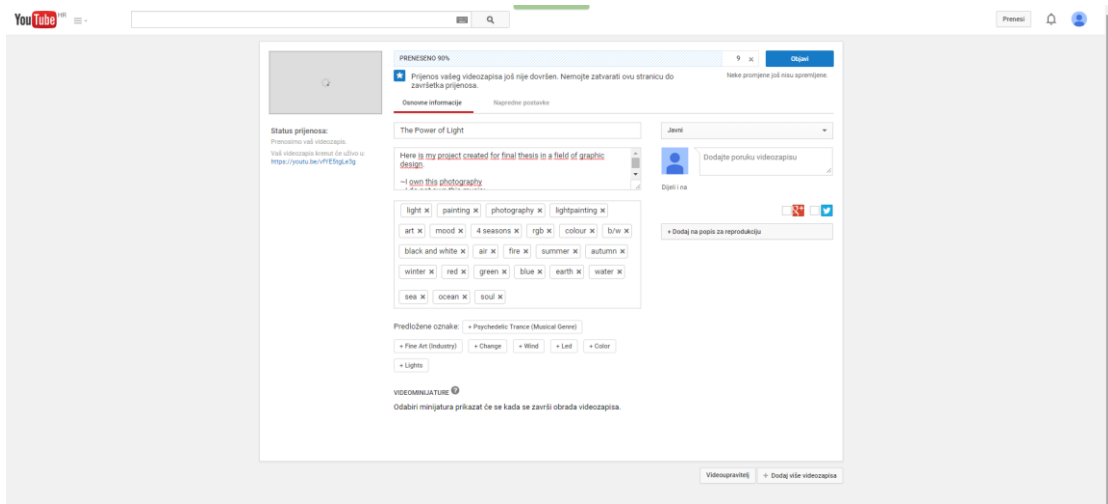


Image 27. Uploading on Youtube

4. RESULTS AND DISCUSSION

Created video is located on the following link:

<https://youtu.be/vfYE5tgLe3g>

Maximum resolution should be adjusted to be able to watch the HD quality of the video.

Also a QR code is created to enable easier reach of this video. (*Image 28.*)

QR codes can be scanned with a QR scanner apps for smartphones.



Image 28. Power of Light QR code

5. CONCLUSION

This thesis explains how to create a video out of professional light painting photography. A lot of time and devotion is needed for creating professional and high quality light painting photography, especially when there is a story that needs to be followed. Light painting photography is modern technique of artistic expression. Concerning the time of exposure for a lot of photography where there is plenty of features to be drawn, BULB mode is needed because the scene demands the time of exposure longer than thirty seconds (30"). Photography in video follow up with the theme. Conceptual rings and links are visible in the video and are presented through it's motives. Four seasons and elements are embedded in the story through the red, green, blue and white color. In this video the bipolarity is expressed on various ways: male and female, individual and collective, colour and darkness etc. Author has told a story of how powerful the light is and created a vision of peace, love and harmony. Through video presentation one can make these static pictures into a dynamic form. At the end, the video is uploaded on Youtube and that is how this positive idea is made visible for the mass.

6. LITERATURE

1. https://en.wikipedia.org/wiki/Digital_single-lens_reflex_camera; 01.06.2015.
2. http://toasterdog.com/lifehacker/lifehacker_night_school_basics_of_photography.pdf; 12.06.2015.
3. https://en.wikipedia.org/wiki/RGB_color_model#Photography; 25.06.2015.
4. https://en.wikipedia.org/wiki/Light_painting; 02.07.2015.
5. <http://lightpaintingphotography.com/light-painting-history/>; 20.07.2015.
6. https://filemanager-abcopen.s3.amazonaws.com/snapped-lightpainting/pdf/ABCOpen_lightpainting.pdf; 27.07.2015.
7. http://www.exploratorium.edu/pie/downloads/Light_Painting.pdf; 28.07.2015.
8. <https://en.wikipedia.org/wiki/Video>; 10.08.2015.
9. <http://beebom.com/2015/02/best-video-editing-software>; 17.08.2015.
10. https://en.wikipedia.org/wiki/Adobe_Premiere_Pro; 17.08.2015.
11. <https://college-college-life.knoji.com/how-to-make-a-conceptual-framework/>; 03.09.2015.
12. <https://en.wikipedia.org/wiki/Infographic>; 07.09.2015.