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Photo Archiving

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Introduction

The purpose of this study is to indicate why we need a photographic archive and how to manage this archive. Firstly, I look at the history of photography, development of photographic tools and transformation of photography into an advanced industry. I further review the revolution of the photography industry by development of digital photography. Then, I explain how digitalization and possibility of using the photo files led to formation of the concept of photo archiving. I also define photo archiving and elaborate on some of the most important functions of photos while discussing about how it could be important to have an archive of photos. In addition, I look at the source sites of photographic materials and see how both free and paid ones work. Finally, I present my project which includes developing a user-friendly photo archive for “Laboratorio di Cultura Digitale”.

History of Photography

The history of photography goes back to the invention of camera-obscura which is considered as the oldest type of camera ever developed by man in the 13th century. This camera was further improved in the 16th century and later in the 19th century. The next focal point in evolution of photography which led to the “phenomenon” of photography _as we know it_ was the discovery of silver printing in the 19th century. This was when photos could be printed and kept. ^{[20][21]}

As a group of inventors (and also chemists) experimented with different materials to improve the quality of the printed photo, others were focused on developing the camera itself and inventing different types of lenses. ^[20] This led to the formation of the business of photography which involved in commercial manufacturing of the relevant devices such as negatives.

Another aspect of photography which has gone through change, especially in the 20th centuries is the themes of the photos. Photos began to be used for various purposes at this time. On the one hand, photography was used to record the works of visual arts, fine arts, fashion models and products, etc. and on the other hand, it became a tool to reflect different social and political phenomena.

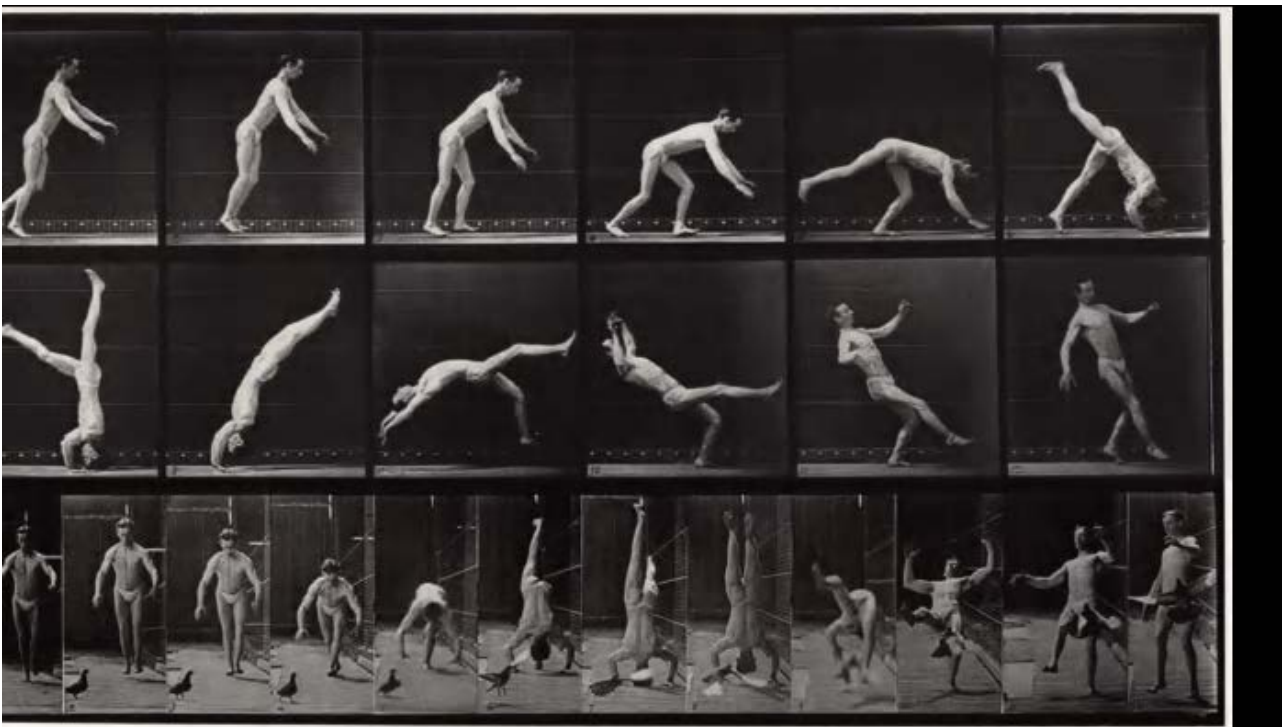


Figure 1. Head-spring, a flying pigeon interfering. Animal Locomotion, Philadelphia, 1887. Photograph by Eadweard J. Muybridge, collotype print. (Courtesy of the George Eastman House Collection, Rochester, New York) ^[20]

Photo Archiving

The discourse of photo archiving is about having groups of photos of different types and how to manage them.

Today, with development of photos system and change of analogue to digital, everyone has a huge amount of photos including photos of vacations, family and memories up to more serious photos as for projects, works, recording events, etc.

The problem with a huge amount of photos is how to label and categorise them in order to access them easily at any time. Some applications sort the photos by using GPS (if the location information is available in the photos) and that's a useful categorisation for some types of photos. An example is the vacation or geography project photos but most of the time, we need more specific ways to manage our archiving. There are also some websites and institutes specifically focused on image hosting services and you can upload, store and sell your photos on these websites.

The necessity of photography material became significant with the use of photos as a tool in many different environments such as journals, newspapers, marketing and studying. It lies in the idea that a photograph can contain a certain message for the audience and it can communicate better than letters and words. Even though the theory of photographic memory is not yet proved, we all feel that when we see some visual material we can remember better than when we read a piece of text.

Capturing the moment always contains various details that we may consider after many years; for example, we studied a lot about World War II but when we put a picture of that period of time and its events beside the letters, it becomes crystal clear.



Figure 2. US army in front of Colosseum in June 1944 – via Wikipedia commons

Communication; Golden Ratio

The hardest part of taking a picture is seeing. To be a photographer is to be someone who knows how to see and can communicate effectively.

Using photos as a communication tool means using the photo with a specific subject that gives the audience clearer information about the subject. For example, for marketing purposes, the connection between advertisement and the photograph is important in attracting customers and conveying the message to them.

As in every language where there are methods of communication, it is the same with the visual language. For having a balanced composition in images, there is a method called “Golden Ratio”. It has been used in many artistic materials such as paintings and architecture. It has the mathematical characteristic in form in the most symmetric way that was used between 15th and 16th centuries by many famous artists to create “belvedere” (nice viewpoint). It is about the point of view of the audience to attract the audience’s attention to the subject as the first thing when they look at the images. Therefore, using this method will help in better understanding of the concept in images.

Our world is full of visuals. Visuals are an essential and expected part of the digital world too. Visual communication is communication through images and communication of ideas and information. Thus, the study of the theories of visual communication is an absolute must for designers. When designers take and edit pictures or create digital images, they cannot capture the entire view in their frame. They must select a part and compose that aesthetically to appear in the frame available to them. The knowledge and understanding of the theories of visual communication helps to do this proficiently and artistically.



Figure 3

Visual Communication Theories

There are 2 types of theories in visual communication:

1. Sensual Theories are raw data from nerves transmitted to brain.

• Gestalt Theory

In 1910, psychologist Max Wertheimer had an insight when he observed a series of lights flashing on and off at a railroad crossing. It was similar to how the lights encircling a movie theatre marquee flash on and off. Wertheimer's observation was that we perceive motion when there is nothing more than a rapid sequence of individual sensory events such as a series of lights flashing in sequence.

We visually and psychologically attempt to make order out of chaos, to create harmony or structure from seemingly disconnected bits of information. This observation led to a set of principles about how we visually perceive objects.

Similarity: refers to groupings by number of characteristics can be similar: colour, shape, size, texture, etc. Thud when a viewer sees these similar characteristics, they perceive the elements to be related due to the shared characteristics.



Figure 4

Continuance: is the principle that once you start looking in a direction, you'll continue to look in that direction until something significant catches your eye.



Figure 5

Closure: occurs when an object is incomplete or a space is not completely enclosed. If enough of the shape is indicated, people perceive the whole by filling in the missing information.



Figure 6

Proximity: occurs when elements are placed close together. They tend to be perceived as a group.

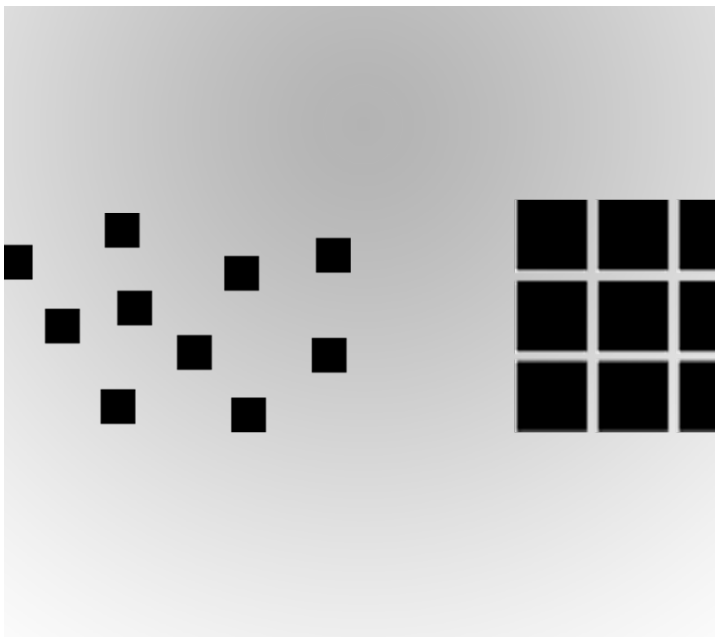


Figure 7

Figure and Ground: The eye differentiates an object form its surrounding area. A form, silhouette, or shape is naturally perceived as figure (object), while the surrounding area is perceived as ground (background). This principle shows our perceptual tendency to separate whole figures from their backgrounds based on one or more of a number of possible variables, such as contrast, colour, size, etc.

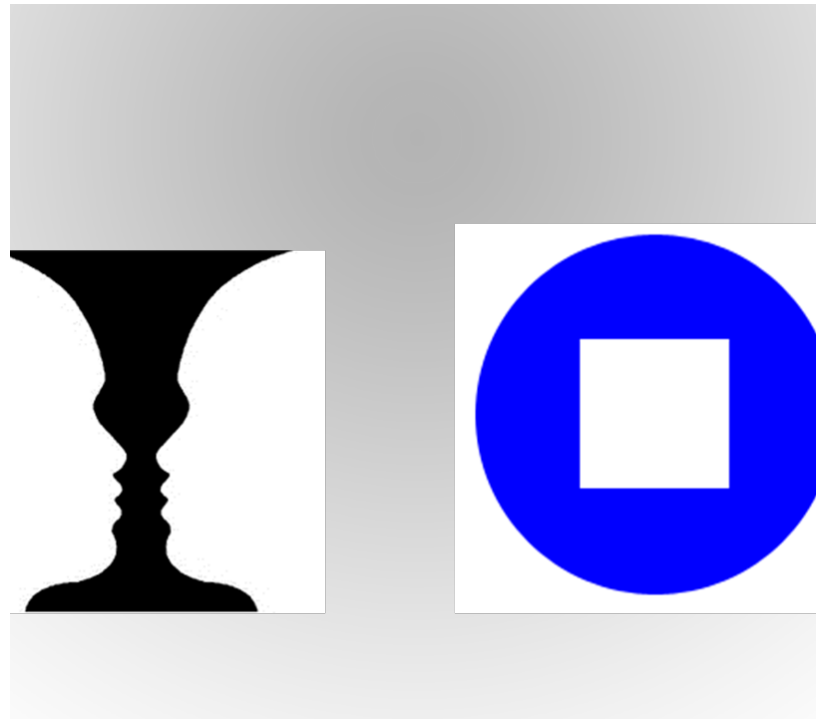


Figure 8

• **Constructivism Theory**

Julian Hochberg, a psychology professor at Columbia University found that human eyes constantly in motion as they scan an image. He came up with the Constructivism Theory to explain “eye-fixations” as a way for viewers to make sense of their own perceptions. In his experiments, Hochberg used eye tracking machines to monitor what how the participants looked at an image. In the study, by using graphic images, it was found that viewers found the largest picture on a page first, and then looked the headline for the story.

When we look at anything, we have to piece it together. We do this through a series of rapid eye movements that assemble a blueprint of what we’re looking at, while at the same time comparing the results to memory and past associations. So, in effect, we construct images out of many narrowly focused observations. Thus the Constructivism Theory helps to understand exactly how certain visual cues are noticed and how others are not noticed.

• **Ecological Theory**

This theory was founded by James J. Gibson, an American psychologist. Gibson challenged the idea that the nervous system actively constructs conscious visual perception and instead promoted ecological psychology, in which the mind directly perceives environmental stimuli without additional cognitive construction or processing. Gibson developed what he called an “ecological approach” to the study of visual perception, according to which humans perceive their environments directly, without mediation by cognitive processes or by mental entities such as sense-data. This idea was radical because it contradicted a centuries-old model of the origins of human knowledge. As Gibson himself put it, “The old idea that sensory inputs are converted into perceptions by operations of the mind is rejected.”

- We interpret what we see through spatial properties in the environment: Surface layout, composition, lighting, motion, gradation, shape, size, solidity and scale.
- Light is the way it reveals the three dimensionality of objects and scale, the way objects diminish as they recede from us are the two most important properties that we use to interpret space.
- Many perceptions about size and depth require no “mental calculation”

2. Perceptual Theories are meanings concluded after the stimuli are received.

• **Semiotics Theory**

It is based on “semiosis,” the relationship between a sign, an object, and a meaning. Signs is simply anything that stands for something else. There are 3 types of signs with different speeds of comprehension:

- Iconic – some form similarity between signs and object it represents. Easiest to understand.
- Indexical – harder to interpret than icons, but still a logical connection to the thing they represent. Examples: footprint, smoke, fingerprints, crumbs
- Symbolic – most abstract; no logical or representational connection to the thing they represent. Examples: letters, words, numbers, colors, gestures, flags, costumes, music etc. They are the most flexible and involve manipulation of universally understood signs.

Semiotics emphasize the importance of symbolism in the visual perception and communication.

• Cognitive Theory

Cognitive theory suggests that perception is not just the result of visual stimuli, but involves a series of mental processes in which we compare what we see to our memories and use those to interpret and analyse. In other words, we understand what we're looking at most easily by comparing it to what we're familiar with. We are constantly on the lookout for things with which we're familiar. So we see, for example, faces in inanimate objects simply because some features look vaguely like eyes and a mouth, such as the man in the moon.

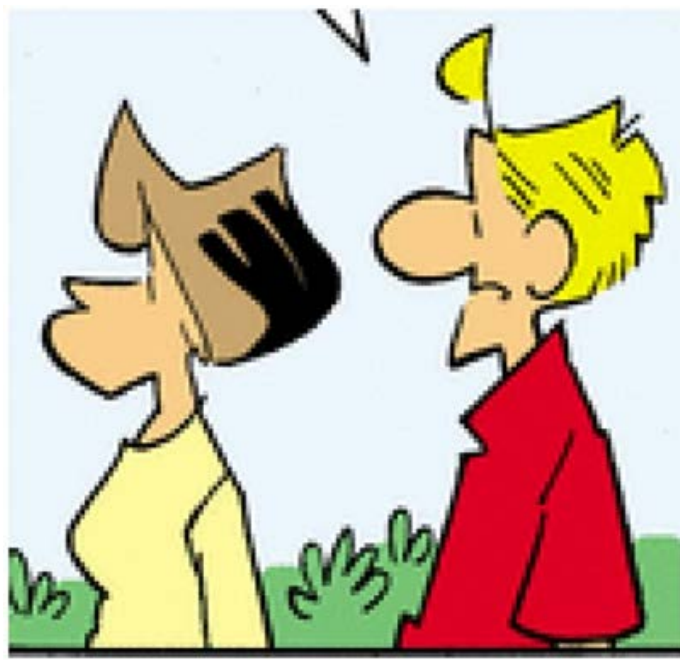


Figure 9

The Rule of Thirds

The rule of thirds is one of the most useful composition technique to produce images which are more engaging and better balanced. The rule of thirds is applied by aligning a subject with the guide lines and their intersection points, placing the horizon on the top or bottom line or allowing linear features in the image to flow from section to section. The idea is that an off-centre composition is more pleasing to the eye and looks more natural than one where the subject is placed right in the middle of the frame. It also encourages to make creative use of negative space, the empty areas around the subject.

History Studying

Photos have been used by historians for the study of history. One good example is the study of the self-image given by photos of Fredrick Douglass, an American reformist who was an abolitionist. While other conventional types of art were more subjective due to being produced by white people, Douglass, who himself escaped slavery, used photos as a more reliable source for portraying himself as a stern black man. His photos also illustrated the sadness and torture the black people had to bear at the time and played an important role in fighting racism.

On the other hand, photography has been used to record the works of art and has contributed to form the history of works of art. Photographic reproductions of works of art and other research objects have long been considered as neutral documents capable of supporting the research methodologies of art history and related disciplines. The introduction of digital imaging saw the adoption of the same model, in that digital copies were presumed closer to the originals.

Today, the neutrality of photography has been deconstructed; nevertheless, the rhetoric of objectivity continues to shape the uses of analogue and digital photographs which are deemed “evidence,” even if one is aware of the possibility of technical manipulation and the influence of social conventions. Similarly, there is little awareness that archives are far from neutral guardians of memory.

In this study, we explore the relationships among photographic reproduction technologies, archival practices, and concepts of objectivity, with an interdisciplinary outlook and a focus on art history. Considering the different reproduction methods such as paper and digital devices, the photographs must be considered material objects in time and space.

Documentary

Nowadays we are living in the world with many multimedia instruments for sharing and acknowledging. Multimedia became, it is non negligible to consider multimedia as a powerful weapon even for politician and governments.

Today we are aware of many aspects of life of people in different parts of the world not only by media that can be with particular purpose but also with various multimedia instrument.

Because of the historical and visual value of photography there are some institute that already since many years working on documentation of important historical event, it's also join with social life of people in different parts of the world. The importance of these institute is they are working on facts as they are and the become a documentary photo archive of the modern history. Because of the copyright issue I'm not able to use their photo as an example but they include a statement on each photo to clarify it. Some of the most eligible of these institutes are Magnum and World press Photo Foundation.

Stock Photography

Stock photography is defined as the archive of images that can be licensed commercially. If you sell a product or service, you automatically have a commercialized need for stock photography in order to support any required marketing collateral. Because of that, you need to license the rights to use a photo for that commercial need. 'Every day you see pictures in magazines, advertisement, posters, online and on TV. The reality is most of the images used were not created specifically for that product, concept, or promotion. The images those companies use are stock photographs. Stock photos are ready-made images that are licensable for use in your advertising or promotional materials. This ability to search for a specific image saves time and money.

Stock Photography has two sides to it. The consumer and the photographer. As expected, the consumers browse the images and downloads them. So it is important for a photographer to consider need of consumers, it can be just commercial and advertising need or scientific and academic need.

Mainly, there are three types of stock photography that every one of them has different explanation, although the material is always photographs but they but there are difference in price, quality and use of them.

Macrostock Photography

Macrostock Photography is high-priced and exclusive stock photography, also known as traditional stock photography, Macrostock image websites generally sell you exclusive rights to images (or other media products). This means that only you have the right to use them, they are yours only. This exclusive right to an image also means that the cost will normally be high compared to an image sold at a microstock image agency. Some users need, or at least want, exclusive rights to use an image (or other media products).

For instance, if an image will be used in a marketing campaign intended to reach millions of people, one would ideally want an exclusive product.

Meaning, one would not want the same image to also be used in a different marketing campaign by someone else, to appear on someone else's website, blog, etc.

Microstock photography

Macrostock Photography, also known as micropayment photography, is a part of the stock photography industry. What defines a company as a microstock photography company is that they source their images almost exclusively via the Internet, do so from a wider range of photographers than the traditional stock agencies (including a willingness to accept images from "amateurs" and hobbyists), and sell their images at a very low rate (from US\$0.20 to \$10 in the US)

Midstock Photography

Midstock Photography place between Macrostock and Microstock photography and depend on website and photos the price is higher than images you find in microstock but it won't be as exclusive and as expensive as macrostock, for example iStock website after been bought by getty image company became midstock and the prices compare to midstock websites are higher.

Photo Licences

Royalty-free (RF)

In photography and the illustration industry, royalty-free (RF) refers to a copyright license where the user has the right to use the picture without many restrictions based on one-time payment to the licensor. The user can, therefore, use the image in several projects without having to purchase any additional licenses. RF licenses cannot be given on an exclusive basis. In stock photography, RF is one of the common licenses sometimes contrasted with Rights Managed licenses and often employed in subscription-based or microstock photography business models.

Rights-managed (RM)

Rights Managed (RM) in the stock photo industry (sometimes called "licensed images") refers to a copyright license which, if purchased by a user, allows the one-time use of the photo as specified by the license. If the user wants to use the photo for other uses an additional license needs to be purchased. RM licenses can be given on a non-exclusive or exclusive basis. In stock photography RM is one of the two common license types together with royalty-free, subscription and microstock photography being business models often confused as separate license types (both use the royalty-free license type).

Public domain (PD)

In relation to photography and graphics, public domain (PD) means the image is free to use without purchasing a license, and can be used for commercial or personal purposes. Works in the public domain are those whose exclusive intellectual property rights have expired, have been forfeited, or are inapplicable. But in many cases even if the photos are public domain it is necessary to indicate the author and source of images, for example all of the Wikipedia photos are public domain but for using it in public conference you need to refer the source.

The public domain is generally defined (e.g. by the U.S. Copyright Office) as the sum of works that are not copyrighted, i.e.

- that were not eligible for copyright in the first place, or
- whose copyright has expired, or
- that were released into the public domain by the copyright holder.

Creative Commons (CC)

Creative Commons (CC) is an American non-profit organization devoted to expanding the range of creative works available for others to build upon legally and to share. The organization has released several copyright-licenses known as Creative Commons licenses free of charge to the public. These licenses allow creators to communicate which rights they reserve, and which rights they waive for the benefit of recipients or other creators. An easy-to-understand one-page explanation of rights, with associated visual symbols, explains the specifics of each Creative Commons license. Creative Commons licenses do not replace copyright, but are based upon it. They replace individual negotiations for specific rights between copyright owner (licensor) and licensee, which are necessary under an "all rights reserved" copyright management, with a "some rights reserved" management employing standardized licenses for re-use cases where no commercial compensation is sought by the copyright owner. The result is an agile, low-overhead and low-cost copyright-management regime, benefiting both copyright owners and licensees.

Purpose and Goal

Creative Commons has been described as being at the forefront of the Copyleft movement, which seeks to support the building of a richer public domain by providing an alternative to the automatic "all rights reserved" copyright, and has been dubbed "some rights reserved". David Berry and Giles Moss have credited Creative Commons with generating interest in the issue of intellectual property and contributing to the re-thinking of the role of the "commons" in the "information age". Beyond that, Creative Commons has provided "institutional, practical and legal support for individuals and groups wishing to experiment and communicate with culture more freely."

Creative Commons Network

Until April 2018 Creative Commons had over 100 affiliates working in over 75 jurisdictions to support and promote CC activities around the world. In 2018 this affiliate network has been restructured into a network organisation. The network no longer relies on affiliate organisation but on individual membership organised in Chapter.

Criticism

All current CC licenses (except the CC0 Public Domain Dedication tool) require attribution, which can be inconvenient for works based on multiple other works. Critics feared that Creative Commons could erode the copyright system over time or allow "some of our most precious resources – the creativity of individuals – to be simply tossed into the commons to be exploited by whomever has spare time and a magic marker."

Critics also worried that the lack of rewards for content producers will dissuade artists from publishing their work, and questioned whether Creative Commons is the commons that it purports to be.

Our Project

Purpose

We started our project last year and it was always about having a university stock of photography, not only about the buildings and classes but a meaningful archive containing photos of activities and events, and especially many projects that we are doing currently in Laboratorio di Cultura Dgitiale (LabCD) to enhance Digital Humanities activities because sometimes it is not only about holding various and useful events but also about how to present our work and how to attract our audience who are interested in the concept. We often miss many conventions and conferences that could be very interesting only because of the lack of clarifying in presenting them, it is the same thing about having a stock, the first even if it is the least information about something just by looking at the simple *good* photo and by the good photo I mean the photo that is a presentation of a concept or topic or even a person, as photographers say the good portrait of a person is not only about good lighting and quality of the image but it is about the information of the personality of a person that a portrait can convey to viewer.

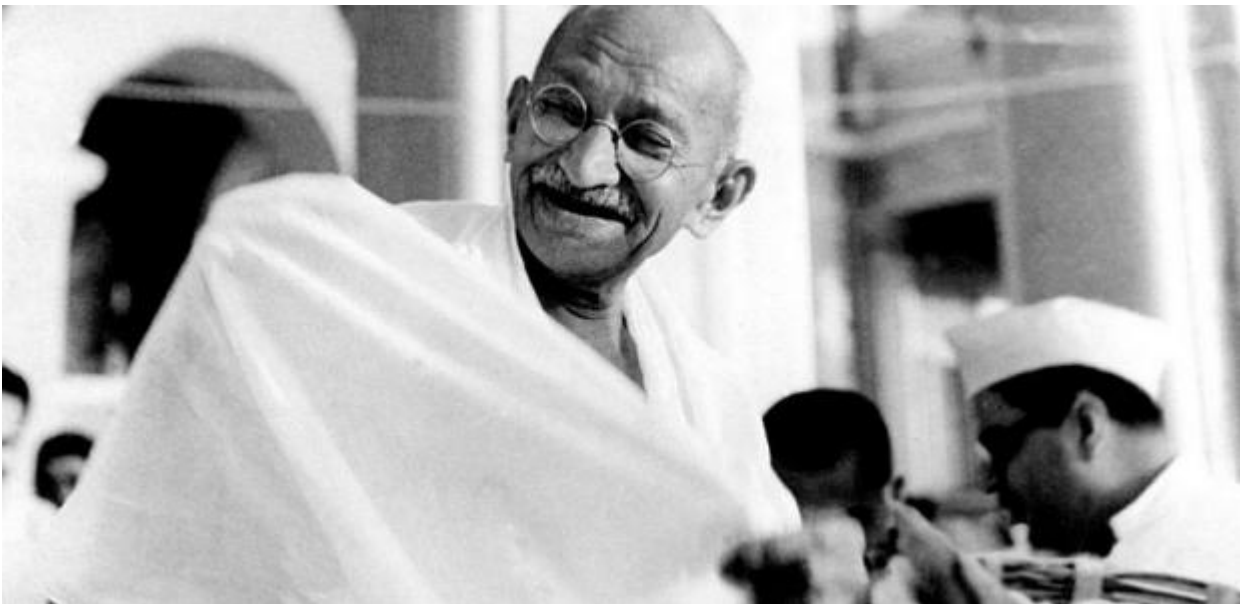


Figure 10. Mahatma Gandhi, via Wikimedia Commons

So we decided to create this meaningful archive and to collect more details about how the photo stock websites work and also know about the different types of licences of using a photo in the project or personal and public websites.

We had compared different stock photography websites , like Pexels , Flickr , Gettyimages and... one of the most important thing in archiving files, photos, script and archiving totally is how accessible our data will be for further use and how much information we can get out of our data, because having a sorted clean data helps the data to be valuable.

Methods

There are numerous methods in order to build an archive for a website. First we study how each of these methods work and afterwards we should decide which one we will apply to our project. The following is an example of a web application (web app) structure and different technology behind this website application and their functionality.

Content management system (CMS)

The content management system (CMS) manages the creation and modification of digital content and supports multiple users in a collaborative environment.

CMS features vary widely. Most CMSs include Web-based publishing, format management, history editing and version control, indexing, search, and retrieval. By their nature, content management systems support the separation of content and presentation.

A web content management system (WCM or WCMS) is a CMS designed to support the management of the content of Web pages. Most popular CMSs are also WCMSs. Web content includes text and embedded graphics, photos, video, audio, maps, and program code (e.g., for applications) that displays content or interacts with the user.

Such a content management system (CMS) typically has two major components:

- A content management application (CMA) is the front-end user interface that allows a user, even with limited expertise, to add, modify, and remove content from a website without the intervention of a webmaster.
- A content delivery application (CDA) compiles that information and updates the website.

Digital asset management systems are another type of CMS. They manage content with clearly defined author or ownerships, such as documents, movies, pictures, phone numbers, and scientific data. Companies also use CMSs to store, control, revise, and publish documentation.

Based on market share statistics, the most popular content management system is WordPress, which is used by over 28% of all websites on the internet, and by 59% of all websites using a known content management system, followed by Joomla and Drupal.

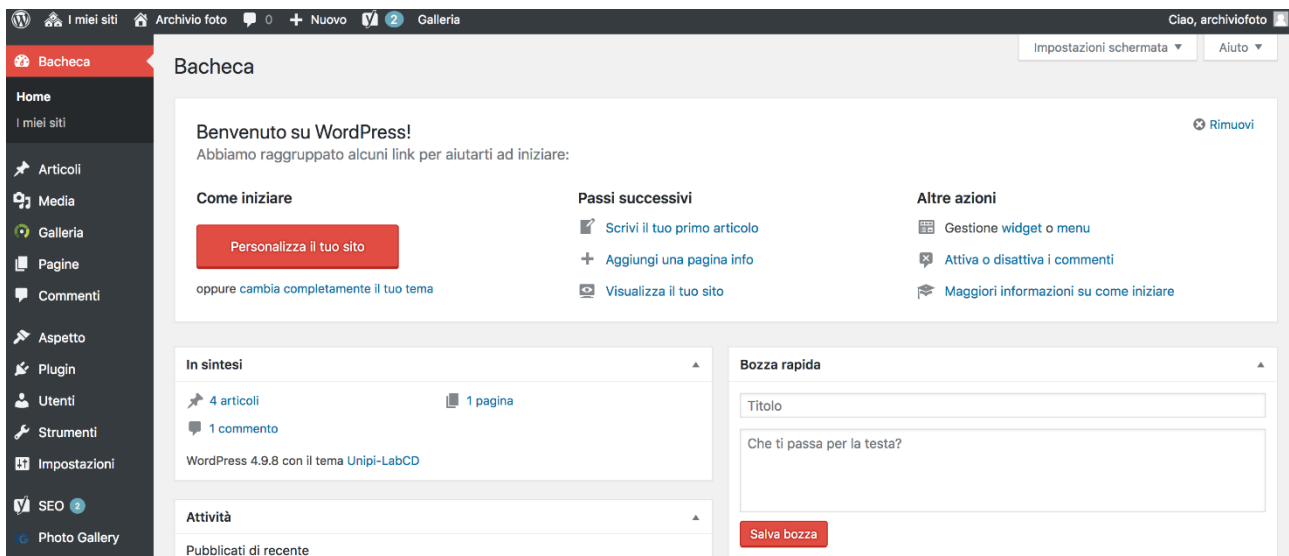


Figure 11. Wordpress CMS Example

While building a website or a web application, the most important decision to be made is the type of the tools that are going to be used. Of course it is possible to create everything from the

beginning, but not all web application creators know the programming languages such as PHP, or display languages like HTML and CSS. Content management systems have reduced the need to have that expertise.

Content management system On the other hand is a web application for managing content. A CMS is built on top of an underlying framework. It enables users to install themes, plugins, etc. without effecting the essential functionality of the site.

A CMS typically doesn't require any coding knowledge since it is based on installable modules that don't touch the original code. It is a simple and easy way to create websites and it does what its name suggests – it allows you to manage the content of your website. Some examples of CMS' you might have heard of include Joomla, Drupal, and WordPress.

WordPress

WordPress is a free and open-source content management system (CMS) based on PHP and MySQL. Features include a plugin architecture and a template system. It is most associated with blogging, but supports other types of web content including more traditional mailing lists and forums, media galleries, and online stores. Used by more than 60 million websites, including 30.6% of the top 10 million websites as of April 2018, WordPress is the most popular website management system in use. WordPress has also been used for other application domains such as pervasive display systems (PDS).

WordPress also features integrated link management; a search engine–friendly, clean permalink structure; the ability to assign multiple categories to posts; and support for tagging of posts. Automatic filters are also included, providing standardized formatting and styling of text in posts (for example, converting regular quotes to smart quotes). WordPress also supports the Trackback and Pingback standards for displaying links to other sites that have themselves linked to a post or an article.

WordPress posts can be edited in HTML, using the visual editor, or using one of a number of plugins that allow for a variety of customized editing features.

Multi-user and multi-blogging

Prior to version 3, WordPress supported one blog per installation, although multiple concurrent copies may be run from different directories if configured to use separate database tables. WordPress Multisites (previously referred to as WordPress Multi-User, WordPress MU, or WPMU) was a fork of WordPress created to allow multiple blogs to exist within one installation but is able to be administered by a centralized maintainer. WordPress MU makes it possible for those with websites to host their own blogging communities, as well as control and moderate all the blogs from a single dashboard. WordPress MS adds eight new data tables for each blog.

As of the release of WordPress 3, WordPress MU has merged with WordPress.

History

b2/cafelog, more commonly known as b2 or cafelog, was the precursor to WordPress. b2/cafelog was estimated to have been installed on approximately 2,000 blogs as of May 2003. It was written in PHP for use with MySQL by Michel Valdrighi, who is now a contributing developer to WordPress. Although WordPress is the official successor, another project, b2evolution, is also in active development.

WordPress first appeared in 2003 as a joint effort between Matt Mullenweg and Mike Little to create a fork of b2. Christine Selleck Tremoulet, a friend of Mullenweg, suggested the name WordPress.

In 2004 the licensing terms for the competing Movable Type package were changed by Six Apart, resulting in many of its most influential users migrating to WordPress. By October 2009 the Open Source CMS MarketShare Report concluded that WordPress enjoyed the greatest brand strength of any open-source content management system.

As of February 2017, WordPress is used by 58.7% of all the websites whose content management system is known. This is 27.5% of the top 10 million websites.

Plugins

In computing, a plug-in (or plugin, add-in, addin, add-on, addon, or extension) is a software component that adds a specific feature to an existing computer program. When a program supports plug-ins, it enables customization. The common examples are the plug-ins used in web browsers to add new features such as search-engines, virus scanners, or the ability to use a new file type such as a new video format. Well-known browser plug-ins include the Adobe Flash Player, the QuickTime Player, and the Java plug-in, which can launch a user-activated Java applet on a web page to its execution on a local Java virtual machine.

A theme or skin is a preset package containing additional or changed graphical appearance details, achieved by the use of a graphical user interface (GUI) that can be applied to specific software and websites to suit the purpose, topic, or tastes of different users to customize the look and feel of a piece of computer software or an operating system front-end GUI (and window managers).

WordPress' plugin architecture allows users to extend the features and functionality of a website or blog. As of March 2017, WordPress has over 55,286 plugins available, each of which offers custom functions and features enabling users to tailor their sites to their specific needs. These customizations range from search engine optimization, to client portals used to display private information to logged in users, to content management systems, to content displaying features, such as the addition of widgets and navigation bars. Not all available plugins are always abreast with the upgrades and as a result they may not function properly or may not function at all. Most plugins are available through WordPress themselves, either via downloading them and installing the files manually via FTP or through the WordPress dashboard. However, many third parties offer plugins through their own websites, many of which are paid packages.

As we said before Wordpress is based on PHP and MySQL also combined with HTML, Javascript and CSS, so about the Wordpress structure we need to know briefly how every one of this single components work, starting with HTML:

HTML (Hypertext Markup Language)

HTML is the code that is used to structure a web page and its content. For example, content could be structured within a set of paragraphs, a list of bulleted points, or using images and data tables.

HTML is not a programming language; it is a Markup language that defines the structure of your content. HTML consists of a series of elements, which you use to enclose, or wrap, different parts of the content to make it appear a certain way, or act a certain way. The enclosing tags can make a word or image hyperlink to somewhere else, can italicize words, and can make font bigger or smaller, and so on.

JavaScript ("JS" for short)

is a full-fledged dynamic programming language that, when applied to an HTML document, can provide dynamic interactivity on websites. It was invented by Brendan Eich, co-founder of the Mozilla project, the Mozilla Foundation, and the Mozilla Corporation.

JavaScript is incredibly versatile. You can start small, with carousels, image galleries, fluctuating layouts, and responses to button clicks. With more experience, you'll be able to create games, animated 2D and 3D graphics, comprehensive database-driven apps, and much more.

CSS (Cascading Stylesheets)

is the first technology you should start learning after HTML. While HTML is used to define the structure and semantics of your content, CSS is used to style it and lay it out. For example, you can use CSS to alter the font, color, size, and spacing of your content, split it into multiple columns, or add animations and other decorative features.

PHP

Hypertext Preprocessor (or simply PHP) is a server-side scripting language designed for Web development, but also used as a general-purpose programming language. It was originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Group.[6] PHP originally stood for Personal Home Page, but it now stands for the recursive initialism PHP: Hypertext Preprocessor.

PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management systems, and web frameworks. PHP code is usually

processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications

PHP includes various free and open-source libraries in its source distribution, or uses them in resulting PHP binary builds. PHP is fundamentally an Internet-aware system with built-in modules for accessing File Transfer Protocol (FTP) servers and many database servers, including PostgreSQL, MySQL, Microsoft SQL Server and SQLite (which is an embedded database), LDAP servers, and others.

SQL

SQL (pronounced "ess-que-el") stands for Structured Query Language. SQL is used to communicate with a database. According to ANSI (American National Standards Institute), it is the standard language for relational database management systems. SQL statements are used to perform tasks such as update data on a database, or retrieve data from a database. Some common relational database management systems that use SQL are: Oracle, Sybase, Microsoft SQL Server, Access, Ingres, etc. Although most database systems use SQL, most of them also have their own additional proprietary extensions that are usually only used on their system. However, the standard SQL commands such as "Select", "Insert", "Update", "Delete", "Create", and "Drop" can be used to accomplish almost everything that one needs to do with a database. This tutorial will provide you with the instruction on the basics of each of these commands as well as allow you to put them to practice using the SQL Interpreter.

Metadata

Metadata is “data [information] that provides information about other data”. Many distinct types of metadata exist, among these descriptive metadata, structural metadata, administrative metadata, reference metadata and statistical metadata.

Descriptive metadata describes a resource for purposes such as discovery and identification. It can include elements such as title, abstract, author, and keywords.

Structural metadata is metadata about containers of data and indicates how compound objects are put together, for example, how pages are ordered to form chapters. It describes the types, versions, relationships and other characteristics of digital materials.

Administrative metadata provides information to help manage a resource, such as when and how it was created, file type and other technical information, and who can access it.

Reference metadata describes the contents and quality of statistical data. Statistical metadata may also describe processes that collect, process, or produce statistical data; such metadata are also called process data.

History

Metadata was traditionally used in the card catalogues of libraries until the 1980s, when libraries converted their catalogue data to digital databases. In the 2000s, as digital formats were becoming the prevalent way of storing data and information, metadata was also used to describe digital data using metadata standards.

The first description of “meta data” for computer systems is purportedly noted by MIT's Centre for International Studies experts David Griffel and Stuart McIntosh in 1967: “In summary then, we have statements in an object language about subject descriptions of data and token codes for the data. We also have statements in a Meta language describing the data relationships and transformations, and ought/is relations between norm and data.”

A principal purpose of metadata is to help users find relevant information and discover resources. Metadata also helps to organize electronic resources, provide digital identification, and support the archiving and preservation of resources.

Definition

Metadata means “data about data”. Although the “meta” prefix (from the Greek preposition and prefix μετά-) means “after” or “beyond”, it is used to mean “about” in epistemology. Metadata is defined as the data providing information about one or more aspects of the data; it is used to summarize basic information about data which can make tracking and working with specific data easier. Some examples include:

- Means of creation of the data
- Purpose of the data
- Time and date of creation
- Creator or author of the data
- Location on a computer network where the data was created
- Standards used
- File size
- Data quality
- Source of the data
- Process used to create the data

For example, a digital image may include metadata that describes how large the picture is, the colour depth, the image resolution, when the image was created, the shutter speed, and other data. A text document's metadata may contain information about how long the document is, who the author is, when the document was written, and a short summary of the document. Metadata within web pages can also contain descriptions of page content, as well as key words linked to the content. These links are often called “Metatags”, which were used as the primary factor in determining order for a web

search until the late 1990s. The reliance of metatags in web searches was decreased in the late 1990s because of “keyword stuffing”. Metatags were being largely misused to trick search engines into thinking some websites had more relevance in the search than they really did.

Metadata can be stored and managed in a database, often called a metadata registry or metadata repository. However, without context and a point of reference, it might be impossible to identify metadata just by looking at it. For example: by itself, a database containing several numbers, all 13 digits long could be the results of calculations or a list of numbers to plug into an equation - without any other context, the numbers themselves can be perceived as the data. But if given the context that this database is a log of a book collection, those 13-digit numbers may now be identified as ISBNs - information that refers to the book, but is not itself the information within the book.

The term “metadata” was coined in 1968 by Philip Bagley, in his book “Extension of Programming Language Concepts” where it is clear that he uses the term in the ISO 11179 “traditional” sense, which is “structural metadata” i.e. “data about the containers of data”; rather than the alternative sense “content about individual instances of data content” or metacontent, the type of data usually found in library catalogues. Since then the fields of information management, information science, information technology, librarianship, and GIS have widely adopted the term. In these fields the word metadata is defined as “data about data”. While this is the generally accepted definition, various disciplines have adopted their own more specific explanation and uses of the term.

Use

Photographs

Metadata may be written into a digital photo file that will identify who owns it, copyright and contact information, what brand or model of camera created the file, along with exposure information (shutter speed, f-stop, etc.) and descriptive information, such as keywords about the photo, making the file or image searchable on a computer and/or the Internet. Some metadata is created by the camera and some is input by the photographer and/or software after downloading to a computer.

Museums and the Internet

Metadata has been instrumental in the creation of digital information systems and archives within museums, and has made it easier for museums to publish digital content online. This has enabled audiences who might not have had access to cultural objects due to geographic or economic

barriers to have access to them. In the 2000s, as more museums have adopted archival standards and created intricate databases, discussions about Linked Data between museum databases have come up in the museum, archival and library science communities. Collection Management Systems (CMS) and Digital Asset Management tools can be local or shared systems.

Digital Humanities

Scholars note many benefits of interoperability between museum databases and collections, while also acknowledging the difficulties achieving such interoperability.

Steps

Using WordPress

First we needed to know exactly what we need, there are many websites that offer photography stock but our work was not really a simple stock archive, so we evaluated different ways to bring out our method for having an archive. We could simply create an account in Flickr website and link all the photos there for those who are interested to look at our archive but we needed to use our logo on the photo and it is not professional to use our logo and put the photos in other websites, on the other hand the advantage of Flickr was the fact that everybody knows the website, so it was good for promoting our name but again there was the discourse of advertising between photos so again it wasn't nice for an academic laboratory to be seen in between advertising.

We evaluated also the possibility of creating a new page from the beginning but the problem again was that it would have been complicated. For every option we needed, there was lots of programming that could cause problems every time we wanted to add photos or change the gallery partially. The other issues was the obligation to have the exact harmony with the main website that is based on Wordpress.

So we listed our needs to find the most efficient way in terms of time, easiness of usage, accessibility to updates, and simplicity of change. For our purpose we needed a simple way to add photos in different types with different tags, names, places, authors and dates and get the most accessible result out of it, so we also needed a way to tag, sort and search the photos inside the gallery page.

Wordpress offers us simplifying in managing our content and when it comes to photo archive we should always consider also the size of files, it can easily be stored in cloud without any limitation and risk of data lost, also for uploading the photos on our website we needed a way to upload a photo as a preview and then have the original image if needed. At this point it wasn't possible to use a normal photo uploading system on Wordpress CMS, it was necessary to use a specific plugin to manage our archive.

Select A Plugin

After lengthy and elaborate discussions about our needs we decided to evaluate some plugins and see which will cover our needs and characteristics of our work. It was not easy to select a plugin that covers exactly our type of needs, so we tried some of the most reliable plugins that are popular at the time such as:

- Modula
- Envira Gallery
- NextGEN Gallery
- Photo Gallery by WD
- Jetpack
- Photo Gallery by Supsysitic
- Justified Image Grid

On the other hand some of them are not free so it was not possible to know if the premium version will be useful or not.

Because of our special use of photos and importance of having responsive photo archive in term of all the information we needed to add to photos as a metadata and the necessity of our data could be manageable and searchable in future non of these plugins were completely suited for our work. Sometimes it is possible to sacrifice some needs to achieve the purpose in our case we may sacrifice some beautifulness of other plugins or some more options that was good to have but not necessary to finally achieve more important goals.

In the end there was one plugin called simply *photogallery* created by 10Web group that has many advantages compared to others that suited our archive. As an example I would list some of the advantages bellow:

- Different styles of gallery preview
- Possibility of showing all the photos of all galleries together
- Modifying to show or not to show all the information's of photos; even name, description, tags, metadata, etc.
- Having the search box
- Having tag box
- Having sorting option on gallery
- Uploading the photos in small dimension
- Downloading the photos with the original size
- Having advertise on photos
- Having watermark on photos
- Action on mouse hover
- Action on click
- Bulk action on groups of photos or groups on galleries
- Photos previewing order on the page
- Full screen mode, photo counter and many other options

And this is all available on the free version, in the premium version of this plugin you will have some extra features:

- Selling your photos

- View count of each photos
- Possibility to download all the photos at one time
- Possibility of commenting on photos

The Content Management System of the plugin has many different features and it's also simple enough to use. Wordpress plugins are at the left side of wordpress's CMS, after selection *photogallery* we can see the menu.

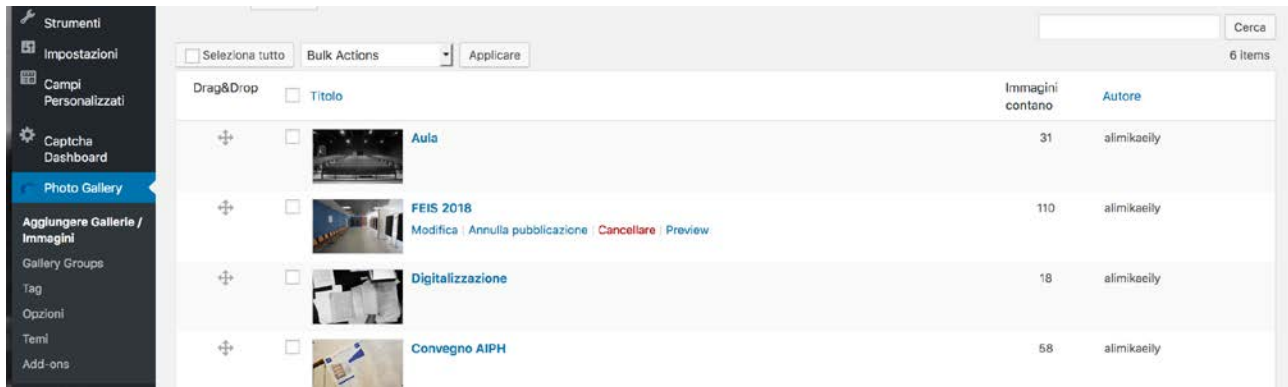


Figure 12

To add a new album it's enough to click on the first option, then select new album and then write down the title of new album.

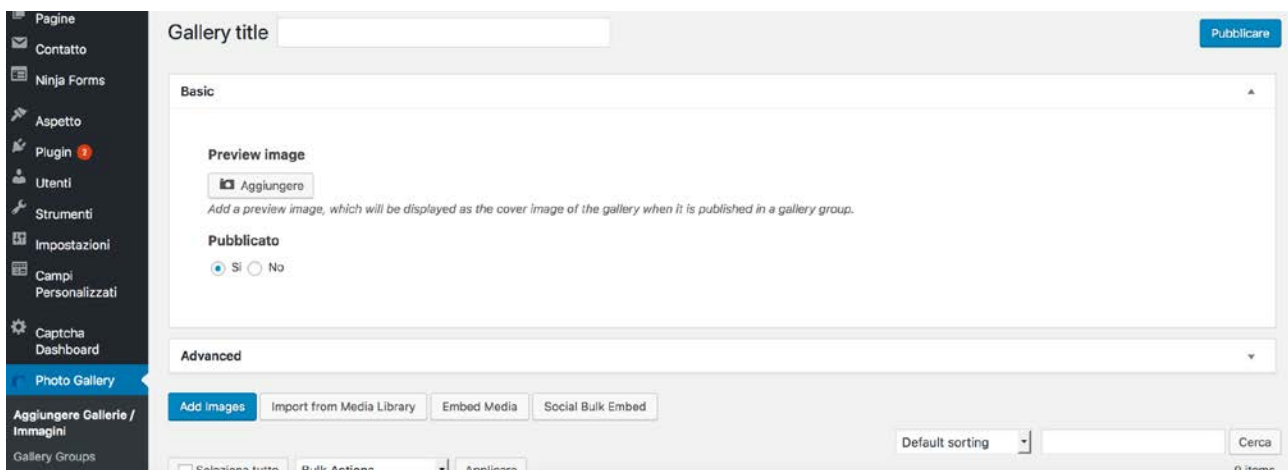


Figure 13

For uploading the photos or using the photos had been already uploaded first we should click on add images, it will shows us the photos we already uploaded then we can add more to them.

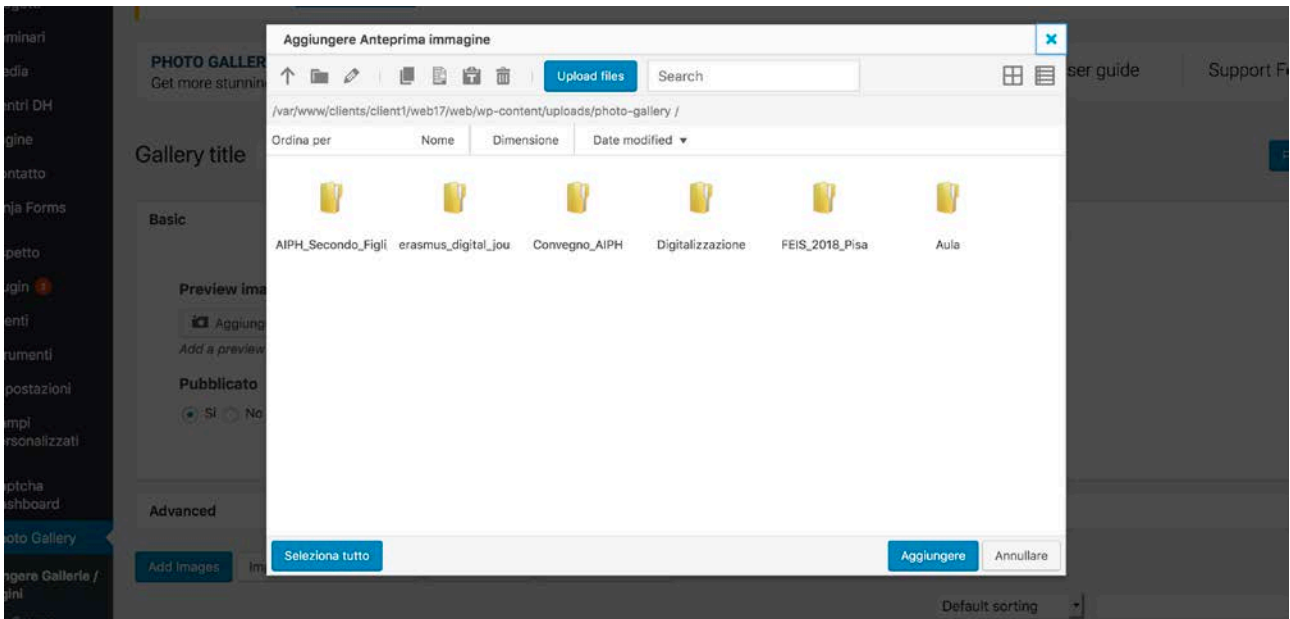


Figure 14

In each album there are some information about each photo and album such as title, description, tags.

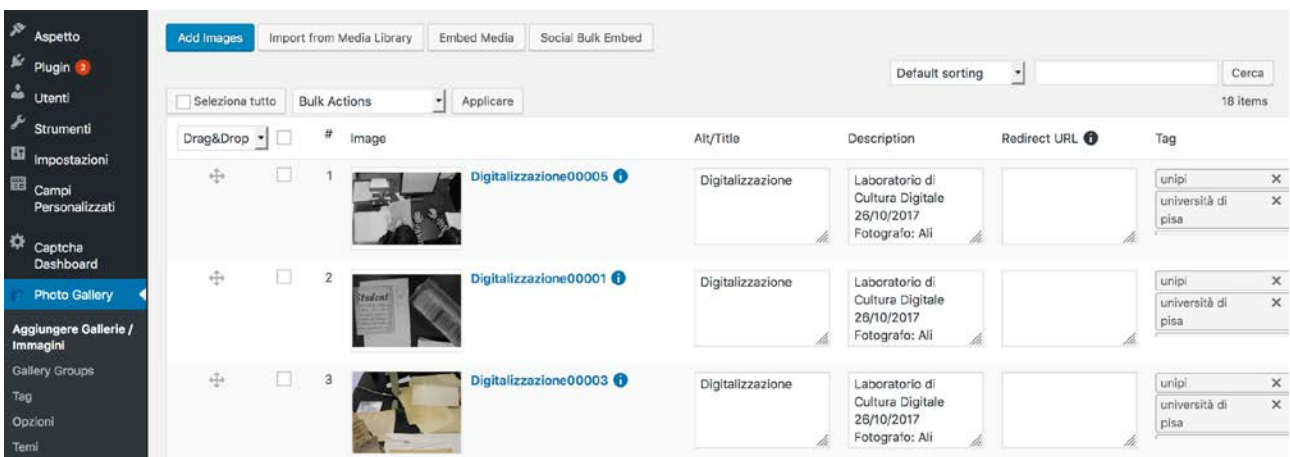


Figure 15

One of the handy option is bulk action, that will give us the possibility to edit and add information to groups of photos.

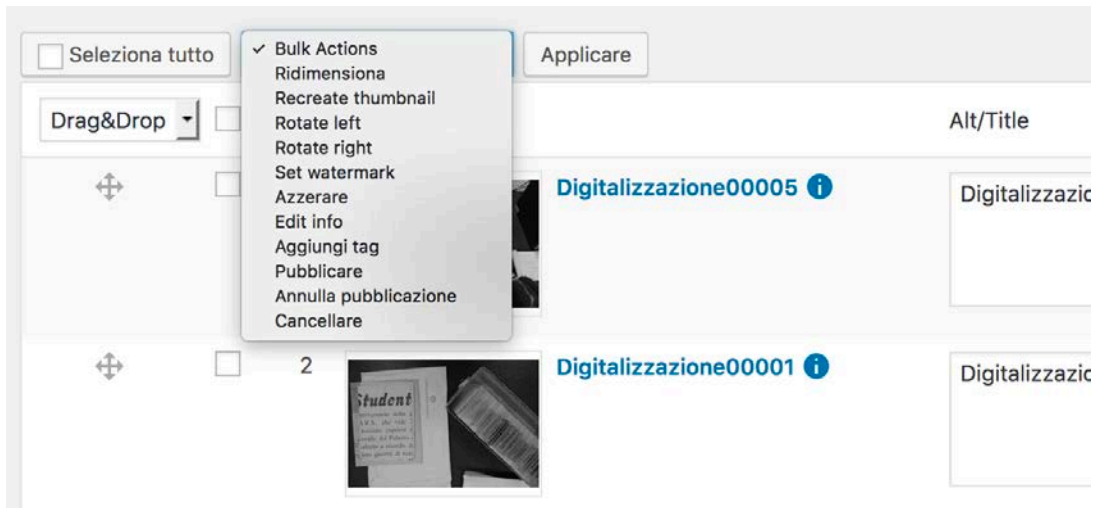


Figure 16

Tagging photos is very important in our archive, for that we have a list of tags that we create by selecting tag in the menu of plugin and insert every tag just one time in the list, then in each album we can add tags to one specific photo for example where we have a person that we want to present in the photo or applying group of tags to all photos by using bulk action.

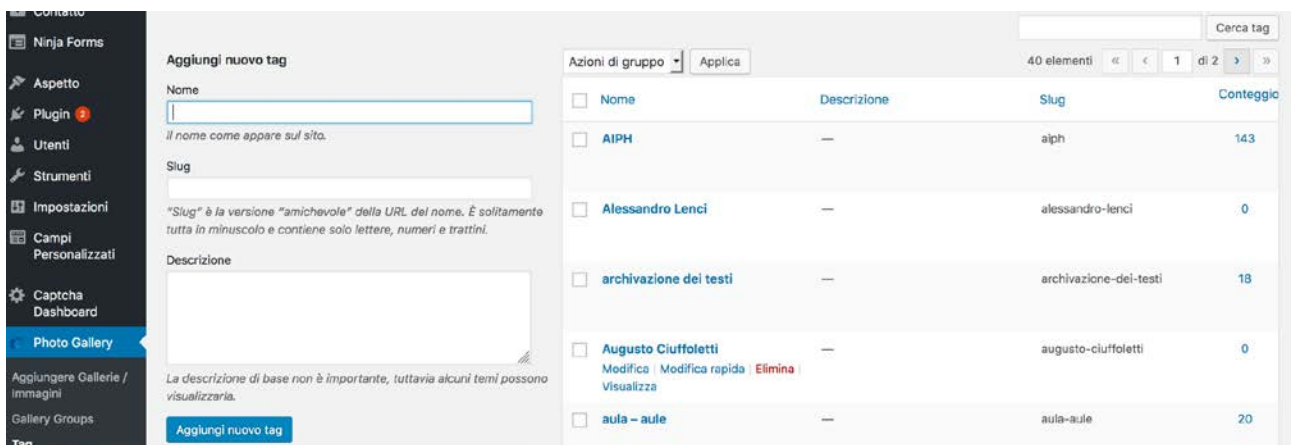


Figure 17

But it has also its downsides, despite of many features they are not complete. For example one of the main thing in our work was possibility to search between photos, not only by the name of photos but also with the name of similar concept. The photos below has taken in one of our events called “Digital Journey”:

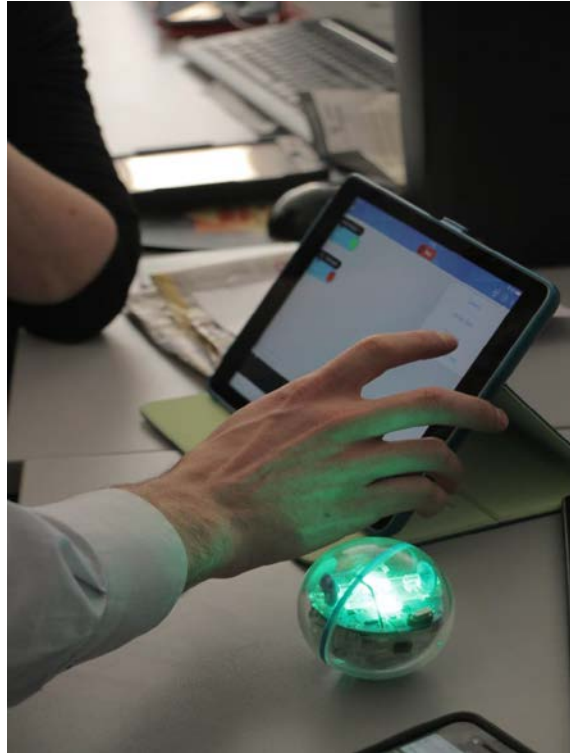


Figure 18

But we can also get other concept out of this photo like Robotics, Technology, Ipad, Educational Robotics. The original search engine of the plugin is based on photo title and description so It is limited to name and description that I insert so we used the tag season of plugin and by tagging every photo with more words possible we eliminated the search bar and modified tag bar to have more precise result.

Final Result

By exploiting Wordpress and Photogallery plugins we created a webpage gallery to achieve our final purpose not only in uploading photos, but also having our search among the photos, it's not a search designed to give us simply a bunch of irrelevant photos, "Laboratorio Cultura Digitale" (LabCD) will offer an archive mostly like a photo stock for having significant result, based on our activities in university, different events, concepts and places.

As an example about script digitalization that could be very ambiguous for those who are not familiar with the concept, with one simple photo we are able to convey the message to the audience.

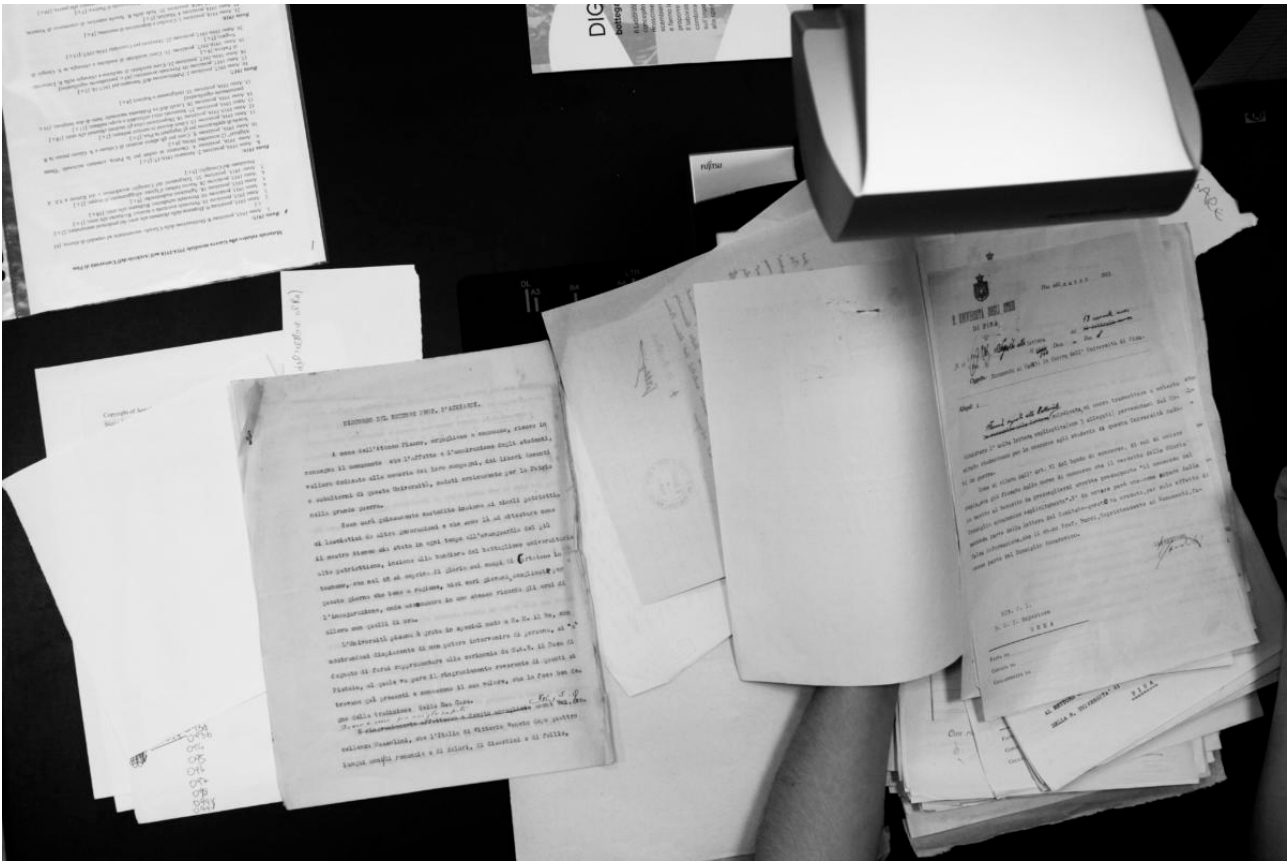


Figure 19

That can change the way of thinking about script digitalizing in the mind of the audience, like we have done in the picture above; the instrument used in laboratory to transform an old script to a file in computer by scanning it that can be easily perceived with a photo and some explanations under it.

For now the page is private to finish the final modifications. In future, every department and student will be able to use our archive for academic purposes such as papers, projects and events. The search engine will work base on keywords used as tags on every photo. We will be precise as possible for the keywords to achieve the most out of our gallery because it's also the best way to elevate our SEO on google.

Here is an example of how our filtering result do his job:

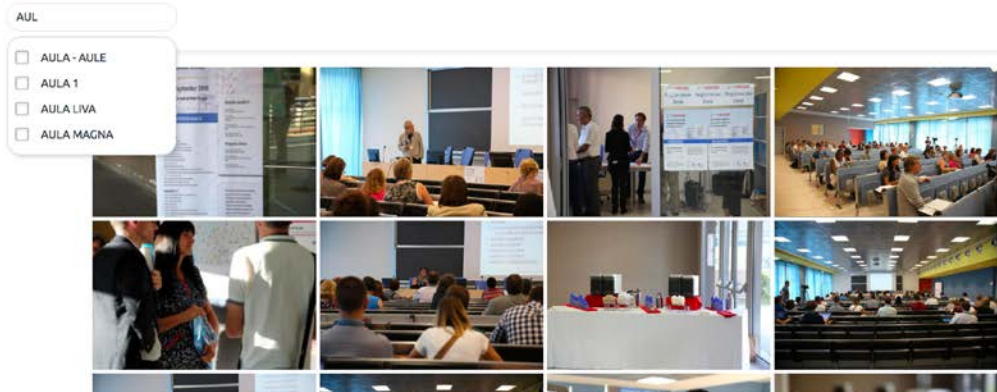


Figure 20

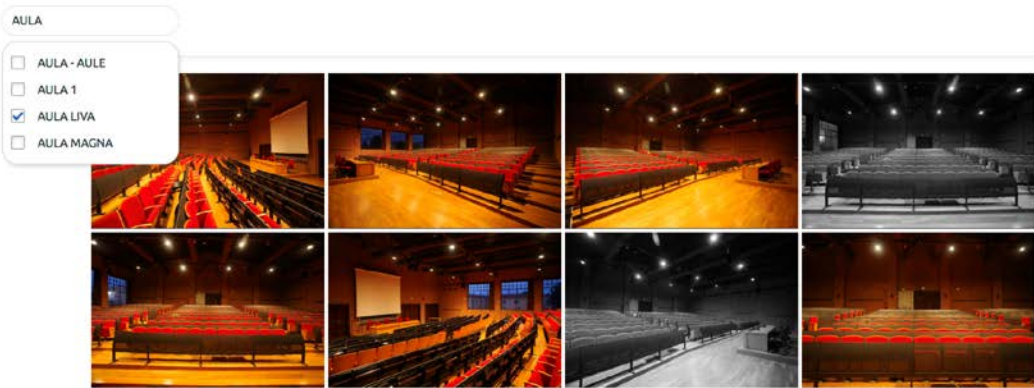


Figure 21

As we can see by selecting keyword “aula” the result will be the related photos.

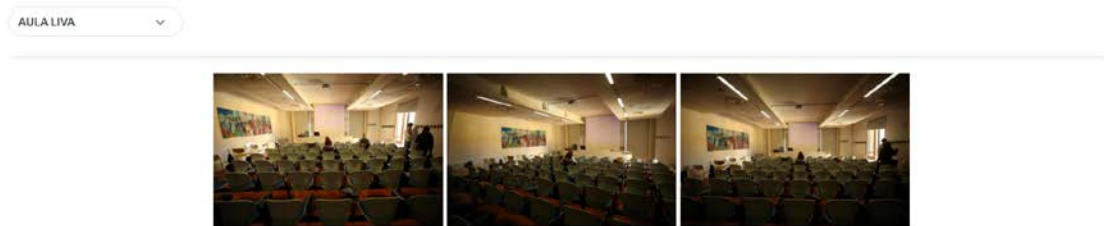


Figure 22

Then in more general example if somebody wanted to search the department the result will contain also other photos of this department:



Figure 23

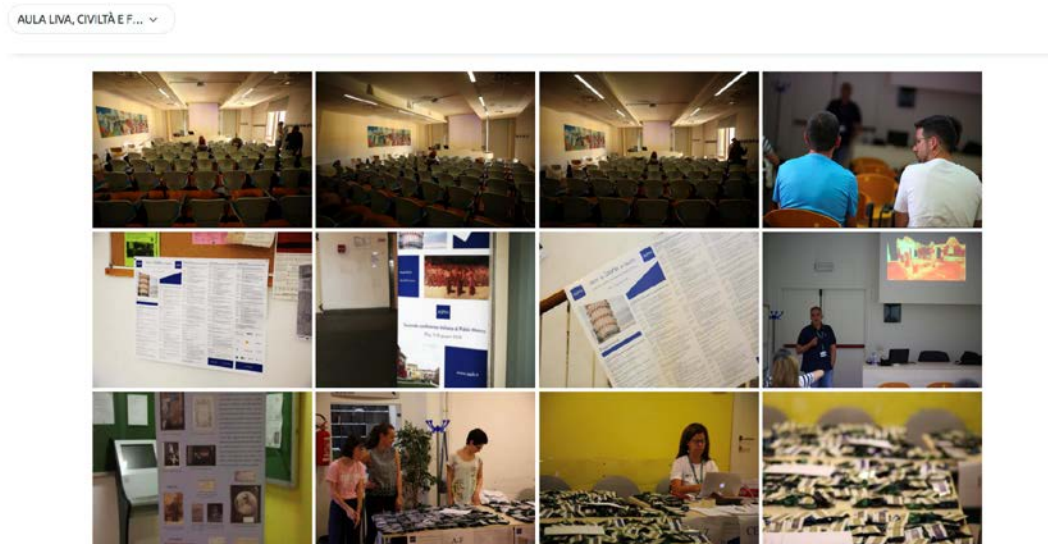


Figure 24

After clicking on every photo there are different information that will be shown to audience:



Figure 25

First the photo will be in zoomed and pops open in full width, on the top right of photo as a metadata there are necessary information of every photo: the title, the place that photo has taken and the photographer. On the top of that there is an “x” for closing the view mode, at the sides of photo there are buttons that give us the possibility to switch between photos. In the top left of photo there’s a logo that is clickable and it will pop-open the main website of “LabCD”. In the bottom, we have three keys the first one at the left will play and slideshow mode for all the photos, in the middle there’s a key to hide the metadata of the photo and at the right there’s a button for downloading the original photo with full size.

The idea is to use the photos as public domain to be available for everyone that want to use them, but with appropriate credit and referring to LabCD and for this purpose we use creative commons logo in our gallery page.



Figure 26

Conclusion

This study provides a holistic picture of the nature of photo archiving and its importance while introducing the relevant websites and tools. The purpose of this study is to clearly introduce the activities of Cultura Digitale Laboratory and in the end, prepare a photo archive that can be accessible to different people who work in similar areas and need to use photos to introduce their own events and activities. Whereas the photos as goods are not always accessible to everyone in the form of photo stocks and there are usually limitations such as obtaining the photo license, I developed this archive so that by using these photos, a better communication is established with the audience for introducing an event or seminar or conference.

As it has always been an issue, one of the most fundamental difficulties in such an archive is accessibility of the photos. This possibility was provided by using informatics. This is an example of using the computer science in relation to humanities. By making proper use of the past tools while developing new tools, a new result has been reached which has not been possible with the present quality and precision before. This project also emphasizes the importance of the field of Digital Humanities as a bridge between Humanities and Computer Science.

In the end, it is noteworthy that this project has been considered with a defined and specific structure so that it can be further developed by the future trainee students. Whereas the method used for this archive is clear and specific, it can be completed by other students and has the possibility of containing various categories of photos.

References:

- 1- Wikipedia.com/WebApplication
- 2- https://www.getty.edu/research/exhibitions_events/events/phoaV_%20program.pdf
- 3- <https://www.slideshare.net/virtuinstitute/lecture-3-visual-communication-theories>
- 4- Learning PHP, MySQL, JavaScript, CSS & HTML5, 3rd Edition by Robin Nixon
- 5- International Journal on Recent and Innovation Trends in Computing and Communication ISSN 2321 – 8169 Volume: 1 Issue: 6 563 – 568 563 IJRITCC | JUNE 2013, Available @ <http://www.ijritcc.org>
- 6- A Study on Ajax in Web Applications with Latest Trends by S. Rajesh Kumar, R. Aravazhi
- 7- <http://www.jguru.com/faq/view.jsp?EID=129328>
- 8- A history of HTML by Addison Wesley Longman
- 9- http://www.getty.edu/research/exhibitions_events/events/photo_archives_objectivity.html
- 10- http://www.getty.edu/research/exhibitions_events/events/object_reproduction/index.html
- 11- http://www.khi.fi.it/4831050/photo_archives
- 12- https://en.wikipedia.org/wiki/Florence_Declaration
- 13- <https://www.khi.fi.it/FlorenceDeclaration>
- 14- https://en.wikipedia.org/wiki/Public_domain_equivalent_license#Reception
- 15- <http://www.jguru.com/faq/view.jsp?EID=129328>
- 16- www.creativecommons.org
- 17- https://en.wikipedia.org/wiki/Creative_Commons
- 18- Joshua Brown, *Historians & Photography, American Art*, Vol. 21, No. 3 (Fall 2007), pp. 9-13 (5 pages), retrieved from https://www.jstor.org/stable/10.1086/526475?newaccount=true&read-now=1&seq=1#page_scan_tab_contents
- 19- <https://www.magnumphotos.com/>
- 20- Peres, M. et al. (2008). *The Concise Focal Encyclopaedia of Photography*. Focal Press (Elsevier): China.
- 21- Werge, J. (1890). *The Evolution of Photography*. Piper and Carter: London. Retrieved from <https://www.gutenberg.org/files/38866/38866-h/38866-h.htm>

