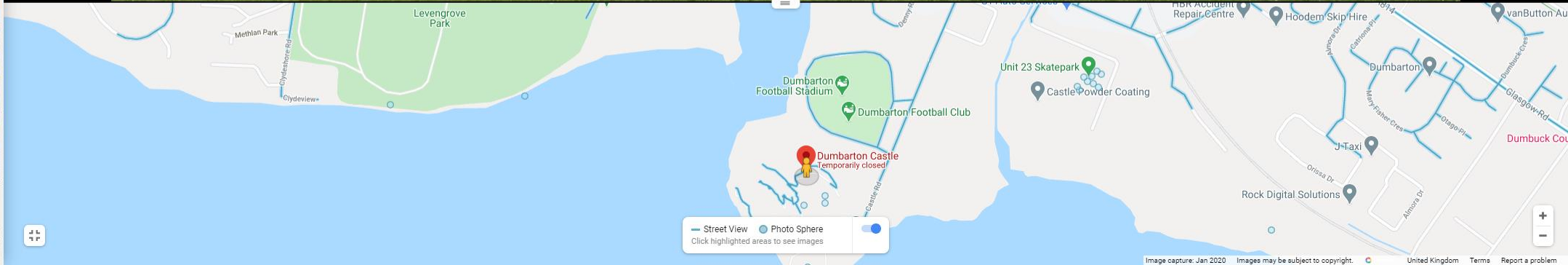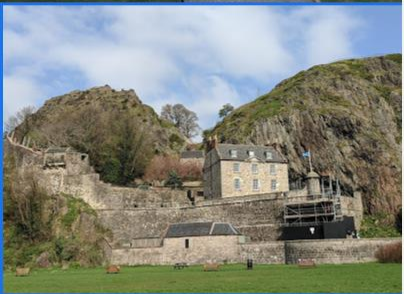# Photography and working with digital images

Overview

- **Communicating heritage with images**
- Digitisation, images and perception
- Shooting an Image
- Post processing and Archive
- Public Domain and Intellectual Property
- Social Media and sharing
- Equipment, Software and Resources

Communicating heritage with images

- Some examples of where images are used
  - Email
  - Messaging
  - Social Media
  - Web Page
  - Google Maps
  - Wikipedia and Wiki media
- Make an archive

CANMORE
NATIONAL RECORD OF THE HISTORIC ENVIRONMENT

Part of Historic
Environment
Scotland

Search

Home   About   MyCanmore   Search   Galleries   Search Room   Guidance   Enquiries

Many of our historic sites are now open, but the HES Archives and Library are currently closed to visitors. In the meantime, you can access our services online. Find out more.
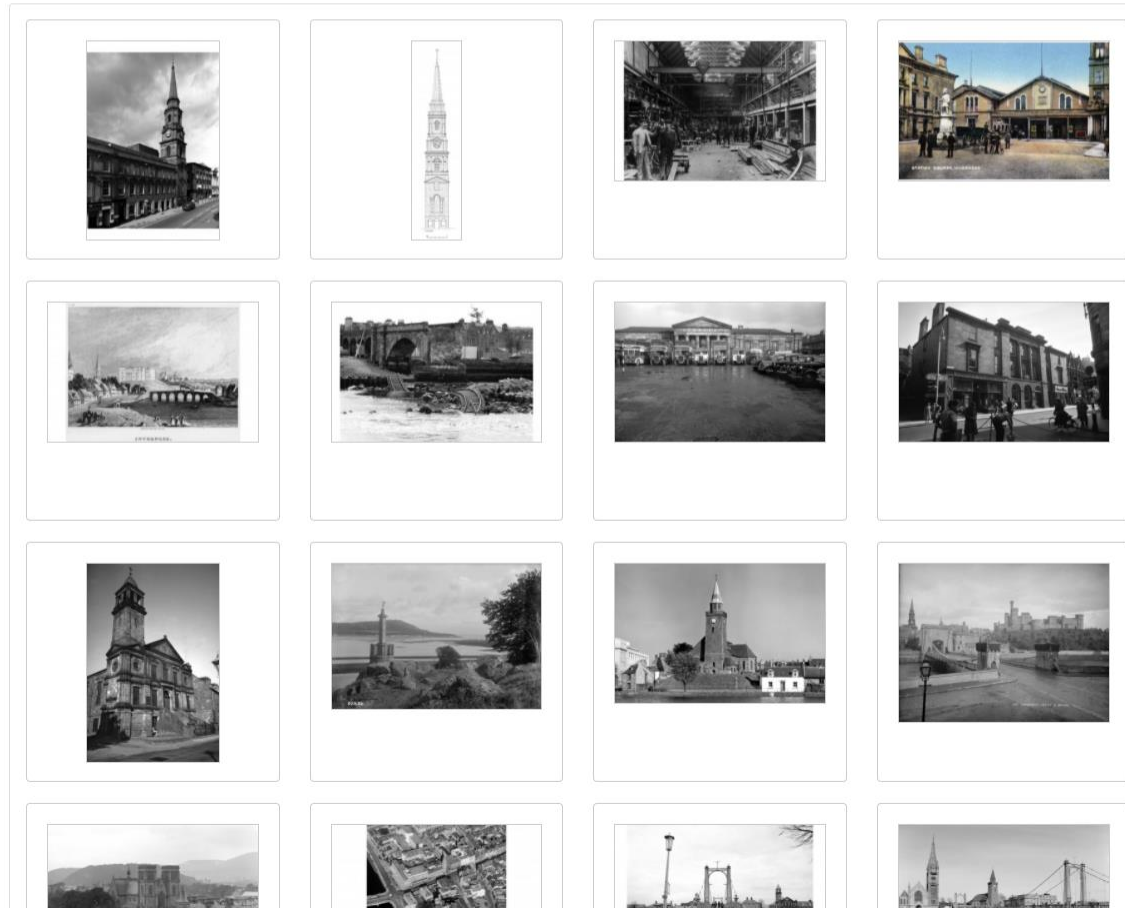
Inverness History

Back to Galleries

05/01/2012

RCAHMS has been working with the National Library of Scotland and the 'Scotsman' newspaper to tell the stories of the nation's cities.

From intricate seventeenth century sketches and eighteenth century town plans, to pioneering Victorian photography and modern aerial survey imagery, the material from the RCAHMS National Collection is being used to produce visual timelines of the history of Scotland's major cities and towns.

You can browse and buy all the imagery featured in the supplements – plus a lot more – in our series of galleries and through our online, searchable database of architecture and archaeology, Canmore.

SCOTLAND | ALBA

DESTINATIONS | ACCOMMODATION | SEE & DO | HOLIDAYS | TRAVEL | ABOUT SCOTLAND | EVENTS | 🔍 SEARCH

Coronavirus (COVID-19) advice. You can now search our website to see what businesses are open and signed up to the Good to Go scheme. Find more advice on exploring Scotland during Covid-19 on our dedicated page.

VISIT ADVICE PAGE

SEARCH OUR BLOG

Keywords
[Keywords]

Category
[All categories ⌄]

Month
[Select month ⌄]

SEARCH

🐃 *Home* » *The Blog* » *Attractions & Days Out* » 10 stunning lighthouses to visit and stay in

THE BLOG

10 STUNNING LIGHTHOUSES TO VISIT AND STAY IN

(f) (t) Nikki Sherret - May 6, 2018 - View Comments

Rattray Head Lighthouse, Aberdeenshire © VisitScotland/Discover Fraserburgh/Damian Shields

Lighthouses are meant to catch your eye, and these ten certainly deliver. These tall, white buildings stand

POSTED IN CATEGORIES...

ATTRACTIONS & DAYS OUT

TAGGED WITH...

#accommodation #lighthouse #Year of Coasts & Waters 2020

File   Discussion

View   Edit   History

Search Wikimedia Commons

Press **F11** to exit full screen

File:Facade of the Pollok House, Glasgow..JPG

From Wikimedia Commons, the free media repository

WIKIMEDIA COMMONS

Main page
Welcome
Community portal
Village pump
Help center

Language select

English

Participate

Upload file
Recent changes
Latest files
Random file
Contact us

Tools

What links here
Related changes
Special pages
Permanent link
Page information
Cite this page
Concept URI
Nominate for deletion

Print/export

Download as PDF
Printable version

| File | File history | File usage on Commons | File usage on other wikis | Metadata |

Size of this preview: 800 × 531 pixels. Other resolutions: 320 × 213 pixels | 640 × 425 pixels | 1,024 × 680 pixels | 1,280 × 850 pixels | 4,288 × 2,848 pixels.

Original file (4,288 × 2,848 pixels, file size: 8.49 MB, MIME type: image/jpeg); ZoomViewer: flash/no flash

Download all sizes

Use this file on the web

Use this file on a wiki

Email a link to this file

Information about reusing

Open in Media Viewer

File information   Structured data

Captions		Edit
English	Add a one-line explanation of what this file represents	

Summary [edit]

Description	**English:** This wonderful building lies at the Pollok County Park, Glasgow, Scotland, UK.
Date	5 November 2013
Source	Own work
Author	Osama Shukir Muhammed Amin FRCP(Glasg)

Licensing [edit]

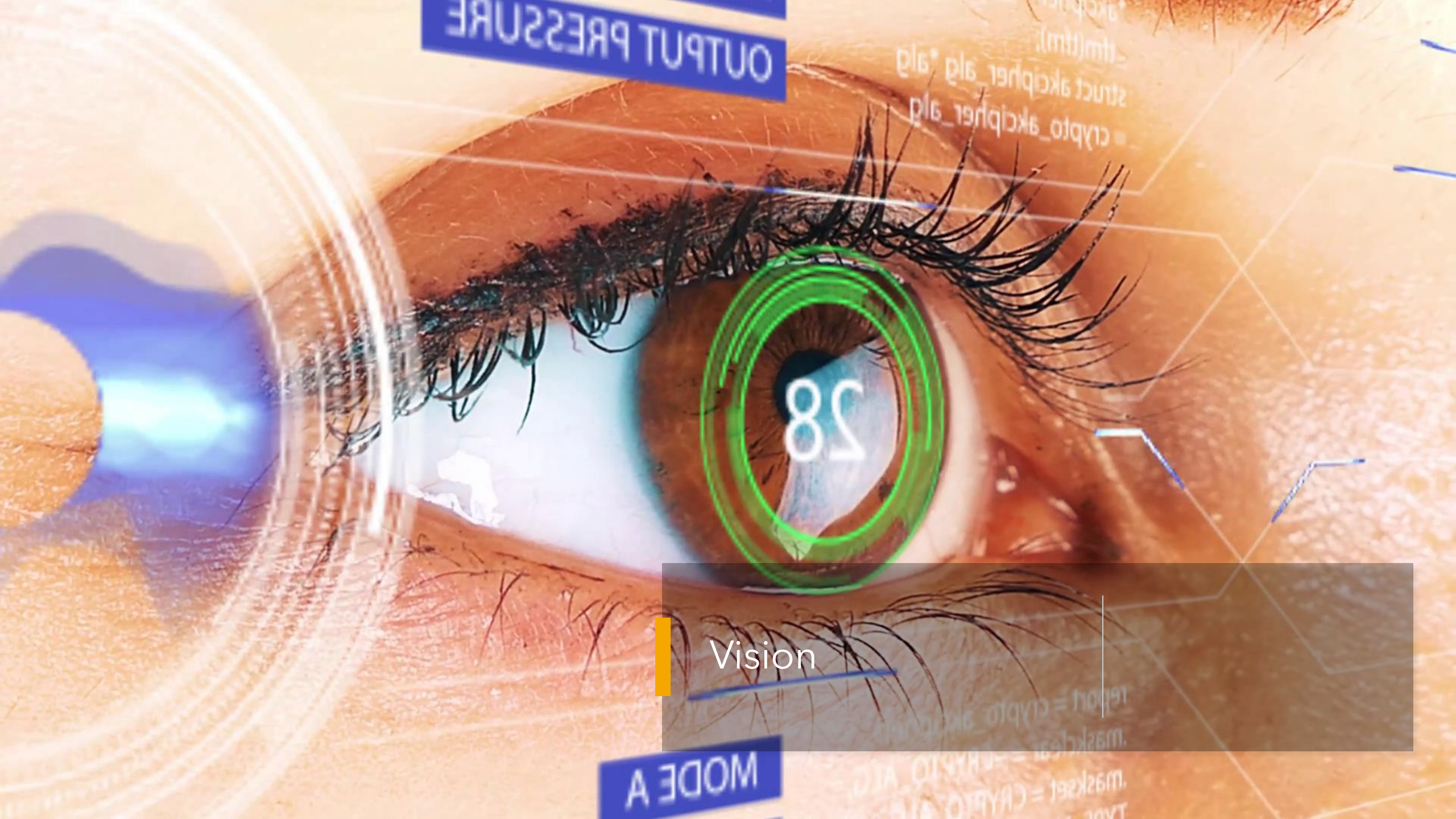Social Media

Overview

- Communicating heritage with images
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Computers and Graphics

- Production and display of still images stored in digital form
  - Digitize printed image with a scanner
  - Capture image from digital camera
  - Grab frame from video camera
  - Create in digital form using graphics package
  - Generate visual representation of data

Rendering

- Image is displayed on monitor etc. as array of *pixels*

- Rectangular (usually square) dots of colour

- Program (e.g. Web browser) sets pixels to an appropriate colour to produce desired image

- Pixels merge optically to produce effect of continuous tone

- Program must maintain a *model* of the image

- May be stored in a file and read by program

Image Resolution

- A 24MP camera gives images of 6000 by 4000 pixels

- A HD screen is 1920 by 1080 pixels

- For print want 300 dots per inch so 24MP is 20 inches wide

- Array of pixels has *pixel dimensions*, but no *physical dimensions*

- By default, displayed size depends on resolution (dpi) of output device

- *physical dimension = pixel dimension/resolution*

- Can store *image resolution* (ppi) in image file to maintain image's original size

- Scale by *device resolution/image resolution*

Compression

- Image files may be too big for network transmission, device storage

- Use more sophisticated data representation or discard information to reduce data size

- Effectiveness of compression will depend on actual image data

- For any compression scheme, there will always be some data for which 'compressed' version is actually **bigger than the original**

Lossless vs Lossy Compression

Lossless eg png

Always possible to decompress compressed data and obtain an exact copy of the original uncompressed data

data is just more efficiently arranged, none is discarded

Run-length encoding (RLE)

Huffmann coding

Dictionary-based schemes – LZ77, LZ78, LZW (LZW used in GIF, licence fee charged

Lossy eg JPEG

Human eye is fairly insensitive to certain kinds of image information

Large objects generally more important than fine detail, textures etc

Quite different to audio compression

Intensity more important than hue

Can quantise colours more coarsely

JPEG Image Compression

- *Lossy* technique, well suited to photographs, images with fine detail and continuous tones

- Consider image as a spatially varying signal that can be analysed in the frequency domain

- Experimental fact: *people do not perceive the effect of high frequencies in images very accurately*

- Hence, high frequency information can be discarded without *perceptible* loss of quality

- Algorithm overview
  - Transform and code each 8x8 block independently
  - Perform Discrete Cosine Transform (DCT) on each block
  - Differentially quantise block's DCT values
  - Run length encode in zig-zag path
  - Statistical encode resulting string

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Shooting an Image

- Equipment: Camera, Phone, Tripod, clicker
- Camera set up
- Wide angle lens for scenes, telephoto for detail
- Try to get the best natural light
- Compose the photographs
- Minimise perspective
- Photographing details
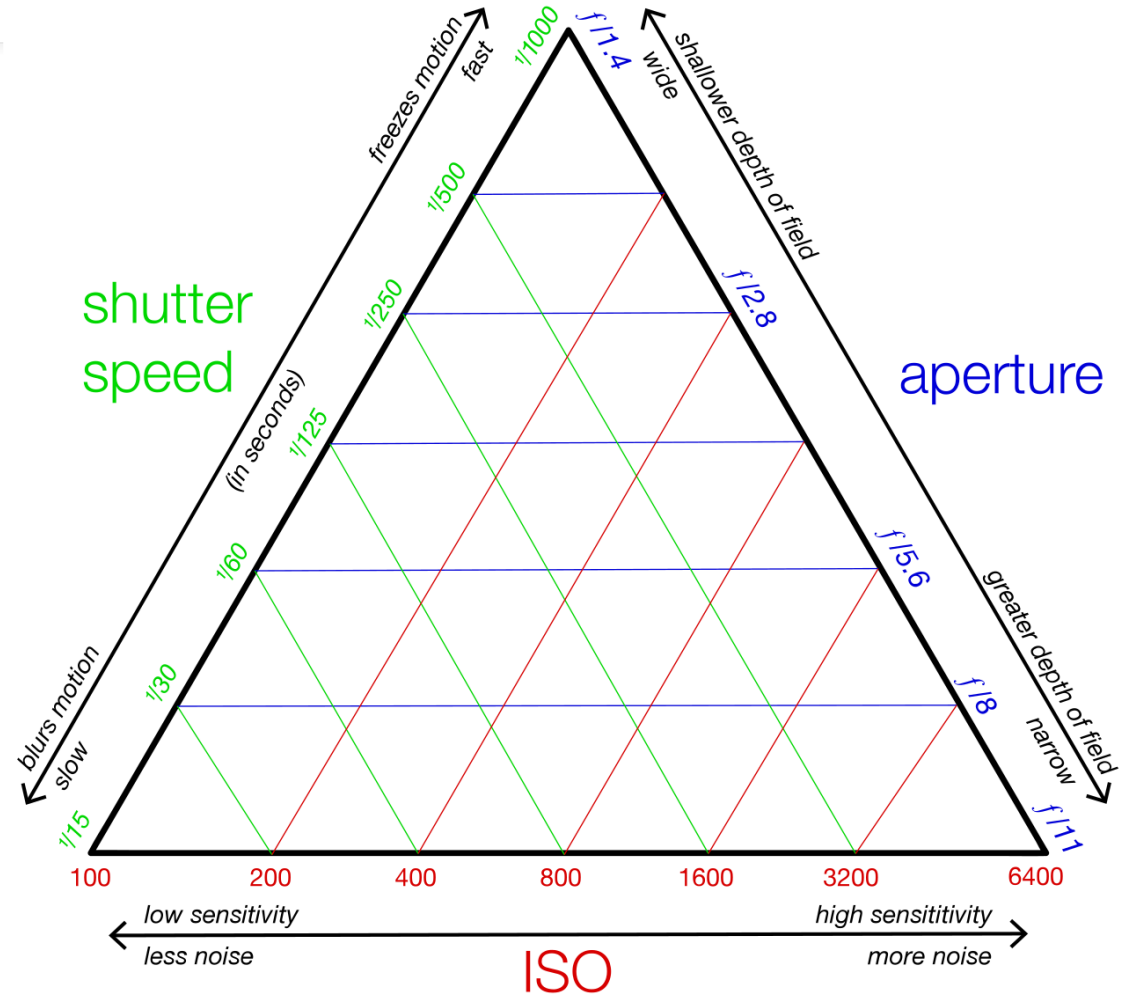
Equipment

- Camera / Phone
    - Manual controls
    - Resolution
        - HD = 2MP 4K < 8MP
- Clicker
- Tripod mount
    - For phone
- Tripod
    - For long exposures
- Memory Card
- Light box
- Lights

Camera set up: exposure

- Exposure
  - Light per unit of area reaching photographic surface
- Size of aperture
  - F number – high number small aperture
- Shutter speed
- ISO
  - Sensitivity to light: lower sensitivity – less noise

Lenses

- Focal length
  - Wide, for landscapes and buildings: 18mm or less
  - Telephoto for details: 50mm or more
- For a "full frame camera" wide: 28mm, telephoto 70mm
- https://photographylife.com/camera-lenses

Light

- Need to rely on Sunlight for architecture and landscapes

- Understand how the building is lite at different times of day

- Take into account the weather, clouds can be exciting too …

- Early morning and evening often has good light

- https://medium.com/@bricks/7-advices-to-master-natural-light-in-architectural-photography-d0c5daac85c5
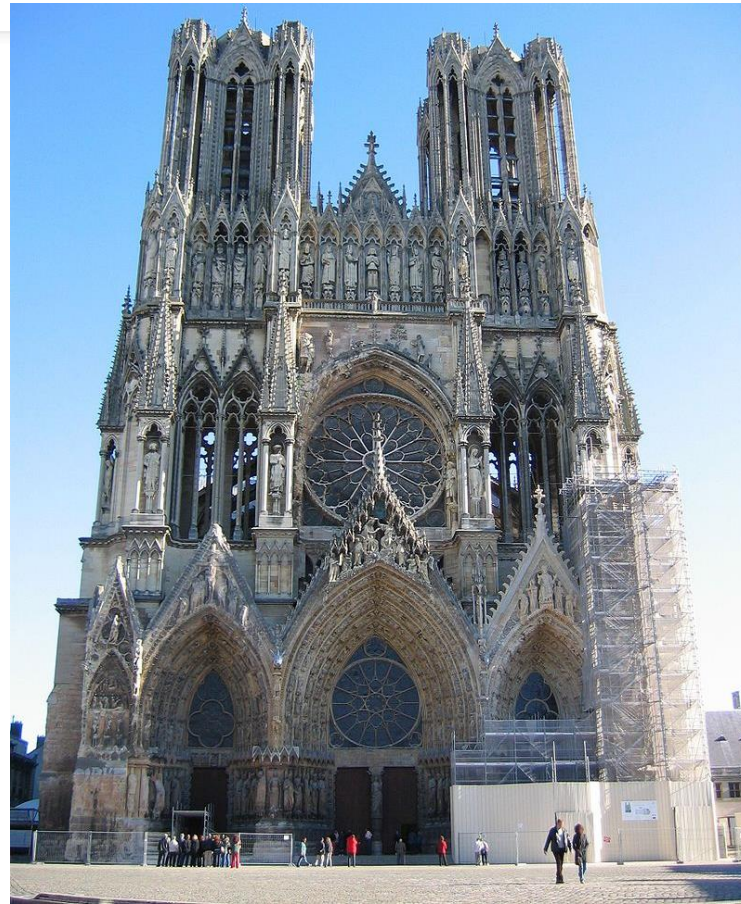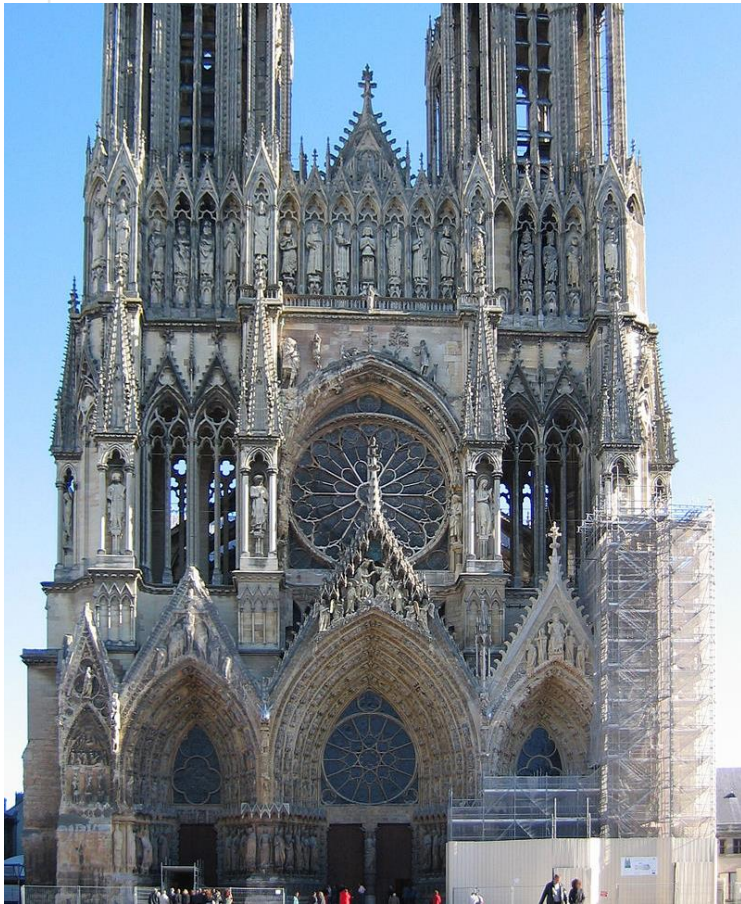
Composition

- Use a wide angle lens to get the whole picture
- Photograph details as well
- Sense of scale: include the familiar
- Consider using a panorama
- Experiment with angles
- Look for patterns and symmetry

Perspective Control

- Photograph face on from the centre (as far as possible
- correct for perspective in software
- Use a "tilt shift" lenses
- http://www.tiltshiftcam.com/5-cheap-tilt-shift-lenses/

Photographing detail

- Choose interesting details!

- Keep the subject parallel to the lens

- Consider black and white

- Photographing details tips

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GIMP
GNU IMAGE
MANIPULATION PROGRAM

⬇ DOWNLOAD 2.10.20   **RELEASE NOTES**

The Free & Open Source Image Editor

This is the official website of the GNU Image Manipulation Program (GIMP).

GIMP is a cross-platform image editor available for GNU/Linux, OS X, Windows and more operating systems. It is free software, you can change its source code and distribute your changes.

Whether you are a graphic designer, photographer, illustrator, or scientist, GIMP provides you with sophisticated tools to get your job done. You can further enhance your productivity with GIMP thanks to many customization options and 3rd party plugins.

Recent News

GIMP 2.10.20 Released
2020-06-11

GIMP 2.10.18 Released
2020-02-24

GIMP and GEGL in 2019
2020-01-04

GIMP 2.10.14 Released
2019-10-31

Read More News »

High Quality Photo Manipulation

GIMP provides the tools needed for high quality image manipulation. From retouching to restoring to creative composites, the only limit is your imagination.

Original Artwork Creation

GIMP gives artists the power and flexibility to transform images into truly unique creations.

## Graphic Design Elements

Programming Algorithms

Edinburgh Castle

- 6000 * 4000 pixels

- 24 Mega Pixels

- JPEG

- 14.5MB

- Author: Ross Fountain

- This file is licensed under the Creative Commons Attribution-Share Alike 4.0 International license.

Changing image size

- The original image may be too large for a specific use

- To reduce the number of pixels in image select the Scale Image Dialogue

- Type the pixel number into width

- Do not change the aspect ratio (leave the chains on)
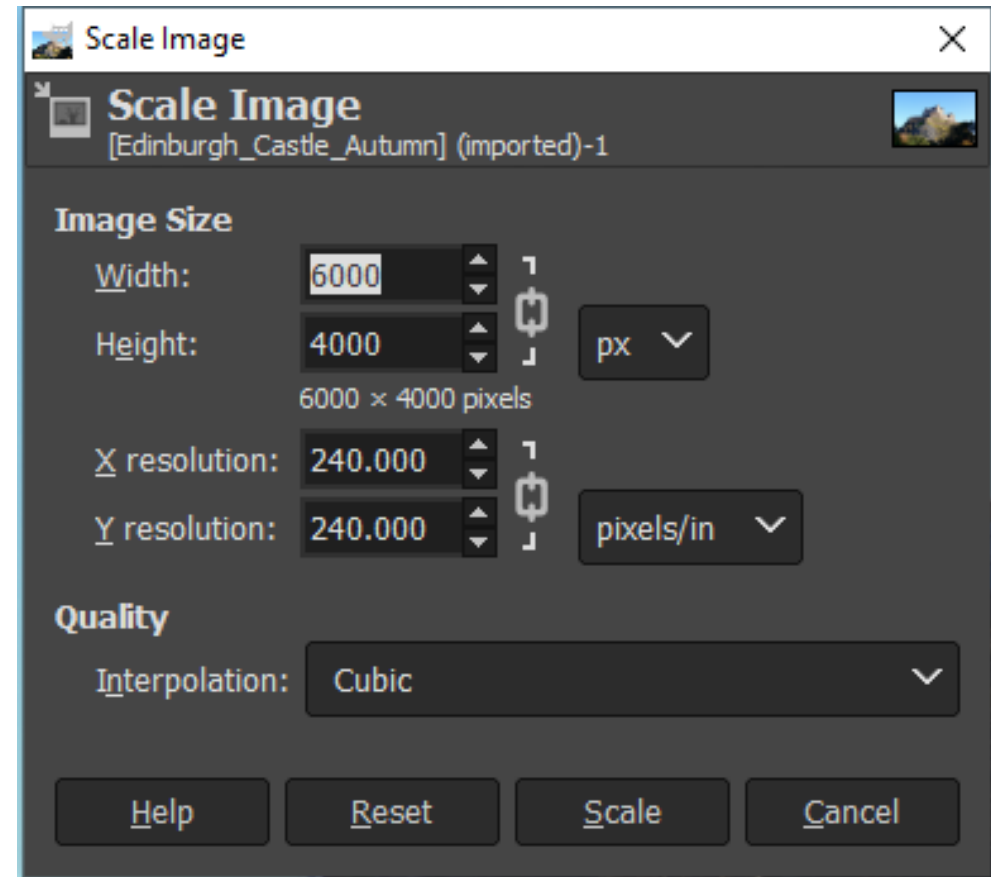
Changing size of a jpeg

- Can reduce file size without changing resolution

- Increase the level of compression

- For example save as a JPEG or increase the JPEG compression

- Choose export as from the file menu

- Reduce quality eg from 100 to 80

- Reduces size from 15.4 to 3.8 MB

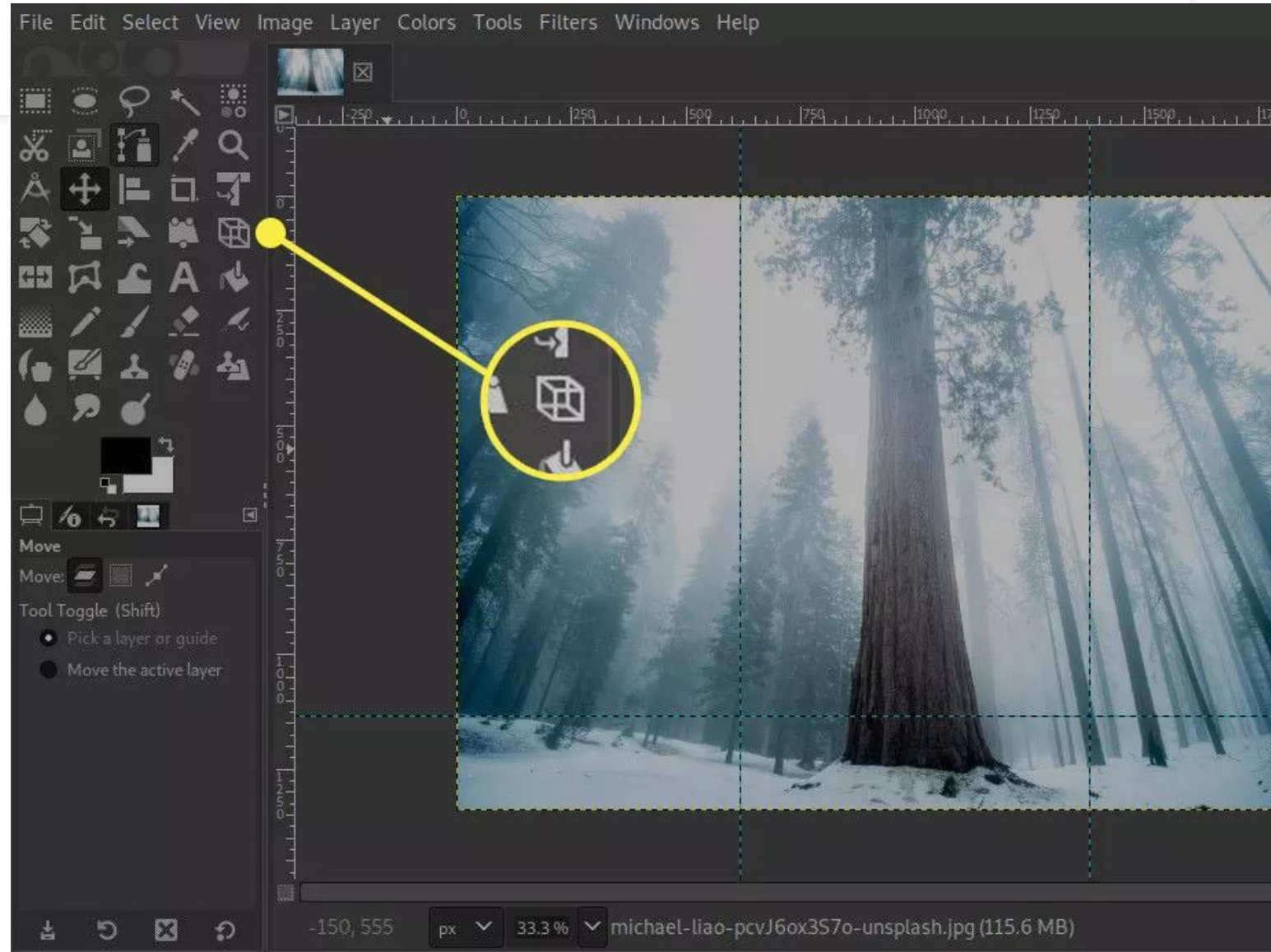- https://www.gimp.org/tutorials/GIMP_Quickies/#changing-the-size-filesize-of-a-jpeg
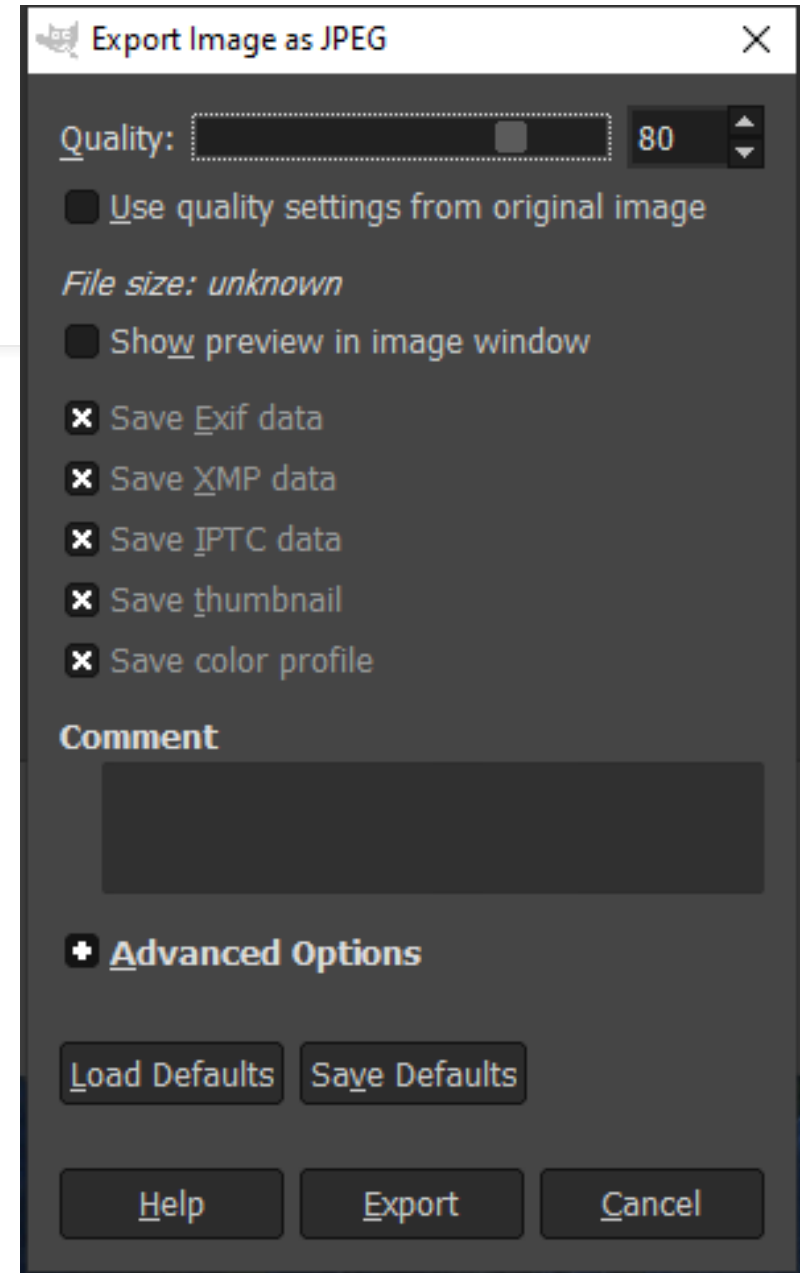
Cropping an image

- Choose the crop tool
- Left click and drag to select the area you want to keep
- Adjust the selection
- Press enter
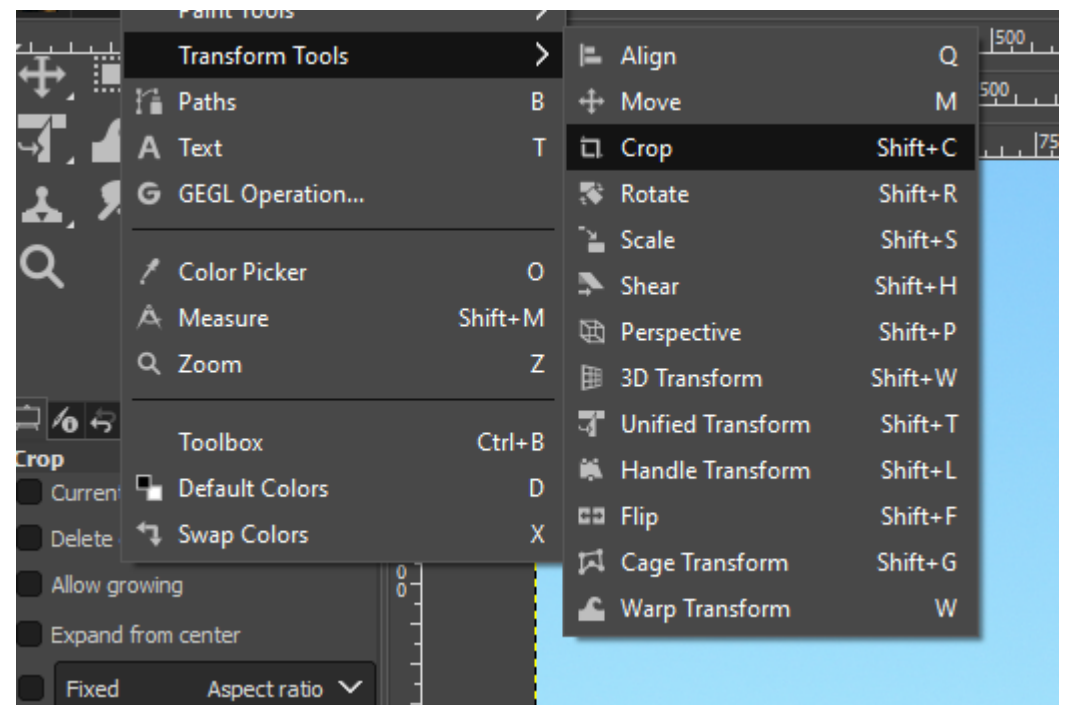
Correcting perspective

- Open the image in GIMP
- Use the perspective tool
- [Correcting perspective distortion](#)

Archiving

- Creating an archive to:
  - Keep high quality original images
  - Associate image with heritage
  - Associate image with meta data
    - Name
    - Date
    - Description
    - License
  - Make it easy to find and share images

Stage
Open Virtual Worlds

University of
St Andrews

LOGIN   UPLOAD   MAP

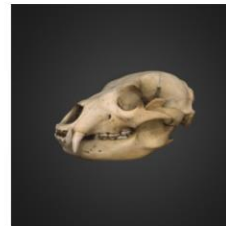Immovable Heritage   Movable Heritage   Intangible Heritage   Natural Heritage

Virtual Tours   Events   Organisations

Search Archive   Upload   Edit

Intangible Heritage Upload Form

Form Type	Intangible Heritage ▼
Name:	Name

Media: Nothing selected ▼   **Primary Media:** Nothing selected ▼

Add Media   Refresh List

Subject: Nothing selected ▼
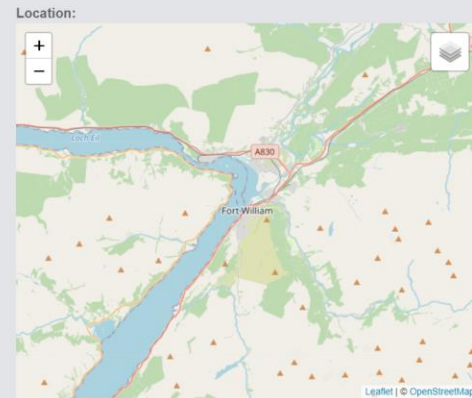
Tags:

Description: Description

Maker/Creator: Maker/Creator   **Creation Date:** Date & Time

Source:

References:

Size: size | size | size | cm ▼

Language: English ▼

Location:

Leaflet | © OpenStreetMap

Current: ● Latitude | Longitude
Origin: ○ Latitude | Longitude
Find: ○ Latitude | Longitude

Cleared for Release: ☐   **Archive:** ☑   **Social Archive:** ☑   **only:** ☑

Organization: Select an Organization ▼   **Collection:** Nothing selected ▼

Site: Nothing selected ▼   **Tours:** Nothing selected ▼

History: History

URL: Sketchfab or Roundme embed URL for objects

Entry Author: eulac3d

Date of Entry: 11/02/2021

Layers: Nothing selected ▼

Media Upload Form

Form Type	Media

File:

Drag & drop files here …

Select files...   📂 Browse ...

URL: Sketchfab or Roundme embed URL for objects

Name: Title

Type: Audio

Format: Select of Format   **Layers:** Nothing selected

Media Creator: Media Creator   **License to End User:** In Copyright (InC)

Media Creator URL: URL   **License Chooser**

Source:

Organization: Select an Organization   **Item:** Nothing selected

Description: Description

Page URL:

Subject: Nothing selected

Tags:

Location:

Current: ● Latitude Longitude

Origin: ○ Latitude Longitude

Fort William

Leaflet | © OpenStreetMap

Cleared for Release: ☐   **Archive:** ☑   **Social Archive:** ☑   **only:** ☑

Submit

Overview

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Social Media and sharing

- Social Connect
  - Facebook
  - LinkedIn
- Social Messaging
  - Whats App
- Social Feeds
  - Twitter
  - Instagram
- Social Archive
  - Flickr
  - Pinterest

Am Baile - Highland History and Culture

@ambaile

Home

About

Photos

Contact

Videos

eBook Service

Library Catalogue

Digital Magazines

Posts

Events

Community

Create a Page

👍 Liked ▼   🔗 Following ▼   ➤ Share   ...

Send Message

Create post

Write a post...

🖼 Photo/Video   👥 Tag friends   💬 Get messages   ...
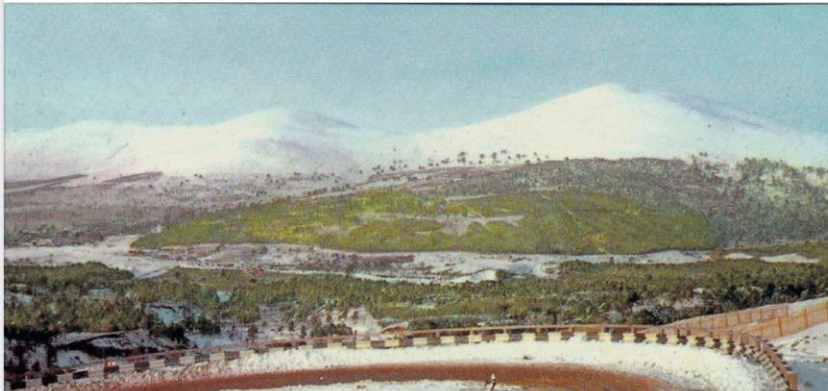
Photos

Community   See all

👥 Invite your friends to like this Page

👍 29,510 people like this

📶 30,771 people follow this

👥 David Heaney and 34 other friends like this

About   See all

📞 01349 781148

💬 Send message

🌐 www.ambaile.org.uk

📦 Education website

✏ Suggest Edits

f **Page transparency**   See More

Facebook is showing information to help you better

openvirtualworlds   Follow

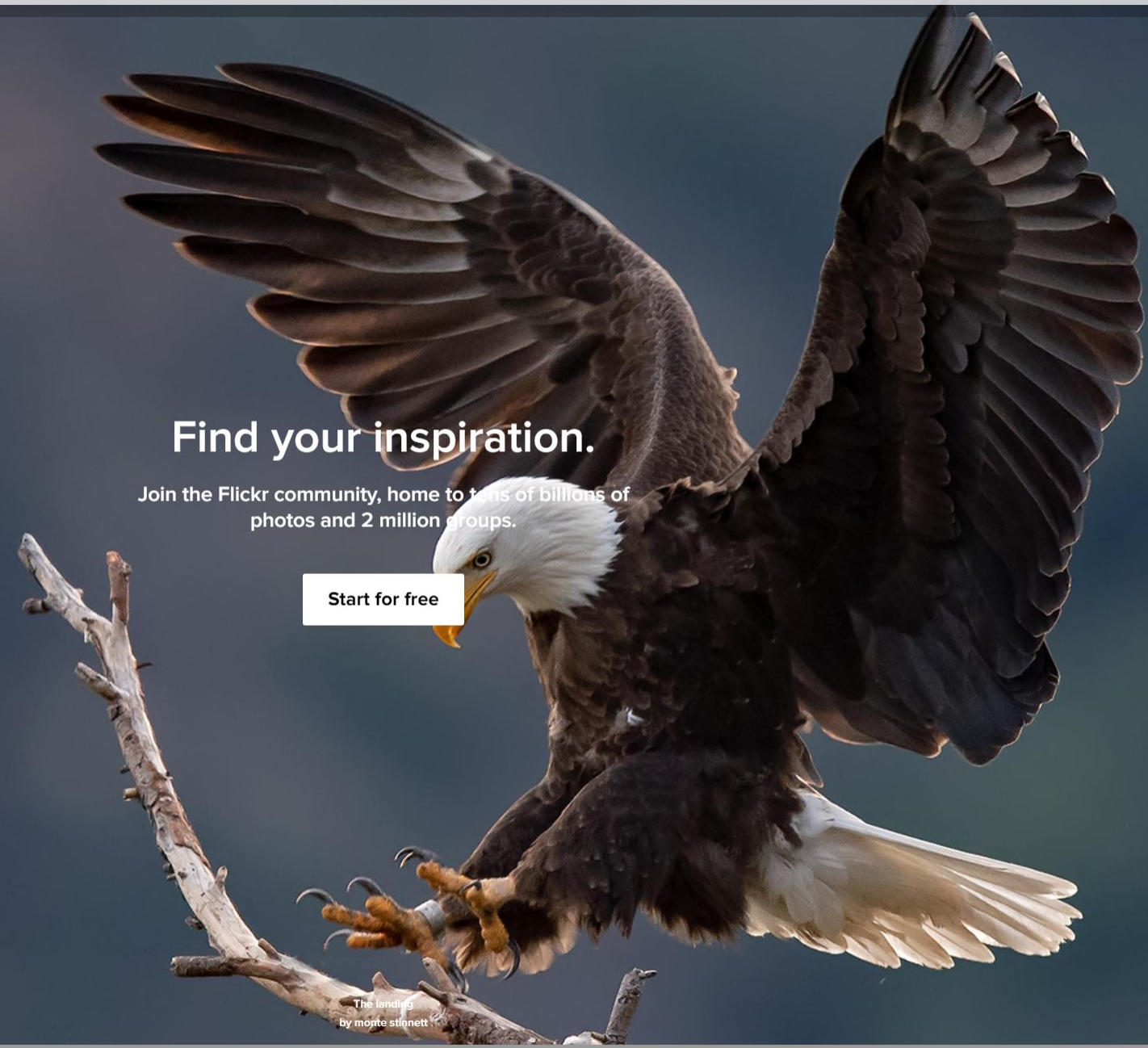**8 posts**   **35 followers**   **215 following**

Open Virtual Worlds
We create digital platforms to make #museumathome real. Reconstructions, virtual tours and 3d galleries make natural and cultural heritage accesible.
facebook.com/events/s/heritage-at-home-edinburgh-154/1114061242283075/?ti=as

▦ POSTS   ▣ TAGGED

Find your inspiration.

Join the Flickr community, home to tens of billions of
photos and 2 million groups.

Start for free

The landing
by monte stinnett

Christy Moore
34m ·

Dear Listeners, Here's a few more songs. Keep the requests coming.
Thanks for listening. Christy ...

👍❤️🥰 You and 634 others   98 comments   130 shares

👍 Like   💬 Comment   ➢ Share   ▾

Killybegs History and Heritage
13m ·

Chat (187)

9

Alan

Manage Page

Open Virtual Worlds

- **Home**
- **Inbox**
  - 16 new comments
- **Events**
- **COVID-19 business resources**
- **Manage jobs**
- **Notifications**
  - 74 new
- **Insights**
- **Publishing Tools**
- **Ad Centre**
- **Page quality**
- **Edit Page Info**

Page settings

Edit

Open Virtual Worlds
Digital creator

✏ Edit Send Message

| Home | Events | Groups | Photos | More ▼ |

📣 Promote   👁 View as visitor   🔍   •••

Upcoming live videos   See all

Today at 14:00
Heritage at Home: The Lords of the Isles
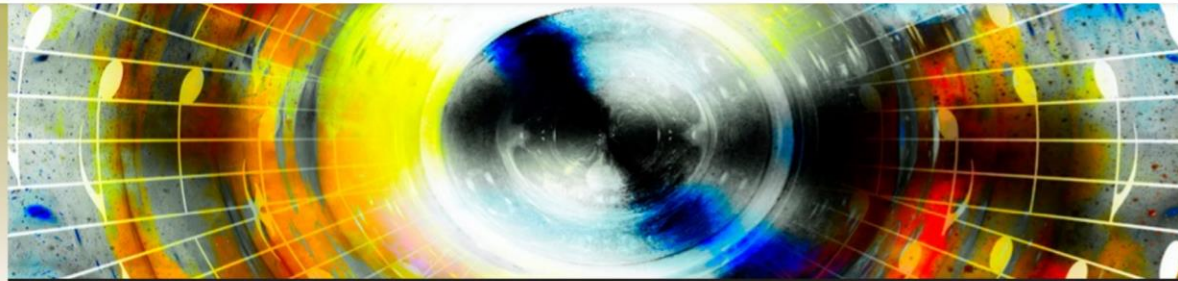Tune in to watch live

Create Post

🖼 Photo/Video   📍 Check in   😊 Feeling/Activity

Create   📹 Live   📅 Event   % Offer   💼 Job   •••

Album **St Kilda Photosphres**

Open Virtual Worlds added 26 new photos — in **St Kilda, Scotland**.
7 mins · 🌐

Group by Open Virtual Worlds and C U P I D O: Digital Heritage in the North Sea Region

Heritage Studio

🔒 Private group · 82 members

+ Invite

About   Discussion   **Units**   Announcements   Rooms   Members   Media   Files

---

UNIT 1 · Optional

Virtual tours: how to make heritage journeys

···

Recording of virtual tours workshop
Link

📄 **Virtual Tours.pdf**
File

👍 1   Seen by 31

👍 Like   💬 Comment

UNIT 2 · Optional

Virtual galleries: how to make digital exhibits

···

Workshop for the Virtual Galleries Unit
Link

👍 2   Seen by 30

👍 Like   💬 Comment

Units

The units on this page align with the online workshops on digital preservation and promotion of heritage. Unit1 Virtual Tours Unit 2 Virtual Gallerie... **See more**

Progress

0 of 0 required units completed

International Image Interoperability Framework™

Enabling Richer Access to the World's Images

[Learn how to get started]

Community Focused

The IIIF is driven by a community of research, national and state libraries, museums, companies and image repositories committed to providing access to high quality image resources.

Defined APIs

The IIIF is anchored by well defined Application Programming Interfaces developed and vetted by an open and rigorous community process.

Plug 'n' Play Software

The IIIF community encourages and supports the development of compatible image serving and viewing software that is easy to install and provides a dazzling user experience.

Highlights

Image Gallery

Anzio

Caen

Goch

Gothic Line

Lighthouse on Calf Sound, Eday. The land on the upper right of the picture is the northern tip of the Calf of Eday.

Museum in Stromness, Orkney Islands, Scotland

North West Europe 1944-1945

North-West Europe 1940

Odon

Reichswald

Rhine

Rhineland

```json
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    "http://wellcomelibrary.org/ld/ixif/0/context.json"
  ],
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    {
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      "value": "Still Image"
    }
  ],
  "manifests": [

  ],
  "sequences": [
```

Museum in Stromness, Orkney Islands, Scotland

+ − ↻

[Link](#)

Caen

About the item

Description
The 7th Seaforth Highlanders waiting to advance, June 1944.

DescriptionEN
The 7th Seaforth Highlanders waiting to advance, June 1944.

Format
image/jpeg

Title
Caen

Type
Still Image

Description
The 7th Seaforth Highlanders waiting to advance, June 1944.

Attribution
IWM (B 6010)

License
https://rightsstatements.org/page/InC/1.0/?language=en

ATTRIBUTION

IWM (B 6010)

About the item

Format

image/jpeg

Title

AROS Cinema

Type

Panorama

German Binoculars

\+   −

German binoculars taken by the 5th Bn
Seaforth Highlanders in 1945.

German binoculars taken by the 5th Bn
Seaforth Highlanders in 1945.

About the item

Description
German binoculars taken by the 5th Bn
Seaforth Highlanders in 1945.

DescriptionEN
German binoculars taken by the 5th Bn
Seaforth Highlanders in 1945.

Europeana Data Provider
The Highlanders' Museum

Format
text/plain Alias/WaveFront Object

Language
English

Title
German Binoculars

Type
3D Object

Wiki
https://www.cupidoeu.org/wiki/index.php
/German_Binoculars

Description
German binoculars taken by the 5th Bn
Seaforth Highlanders in 1945.

[Link](#)

Seaforth Highlander POW Side Drum

+ −

Description

Title
Seaforth Highlander POW Side Drum

Description
Side Drum - made for use by the Pipe
Band formed by Prisoners of War. It
bears the badge of the Seaforth
Highlanders. Part of the...

>> MORE INFORMATION

About the item

Description
Side Drum - made for use by the Pipe
Band formed by Prisoners of War. It
bears the badge of the Seaforth
Highlanders. Part of the... MORE

DescriptionEN
Side Drum - made for use by the Pipe
Band formed by Prisoners of War. It
bears the badge of the Seaforth
Highlanders. Part of the... MORE

Format
text/plain Alias/WaveFront Object

Title
Seaforth Highlander POW Side Drum

Type
3D Object

Description
Side Drum - made for use by the Pipe
Band formed by Prisoners of War. It
bears the badge of the Seaforth
Highlanders. Part of the... MORE

Equipment, Software and Resources

- Communicating heritage with images
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- Social Media and sharing
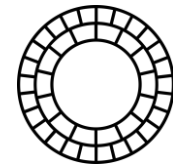- **Equipment, Software and Resources**

Equipment

- Camera
- Phone
- Clicker
- Tripod mount
- Tripod

Software

- GIMP: image editing software:
- Open Camera: android camera app
- VSC0: IOS camera app
- Instagram: image streams
- Flickr: image galleries
- International Image Interoperability Framework (IIIF)
- Omeka: archive and exhibition system

Resources and guides

- [Getting started with GIMP](#)
- [Introduction to Open Camera](#)
- [Introduction to VSCO](#)
- [How to get the most out of flickr](#)
- [Getting started with Instagram](#)
- [CUPIDO Virtual Museum](#)

Resources

- [Smithsonian](#) Open Access
- [Historic Environment Scotland Canmore](#)
- [Creative Commons](#)
- [Wikipedia Public domain image resources](#)
- [Doors Open Digital Guide](#)
- [Digital Doors Open Resources](#)

International Image Interoperability Framework

https://iiif.io/

Open Camera is an Open Source Camera app for Android™ phones and tablets. Features:

- Option to auto-level so your pictures are perfectly level no matter what.
- Expose your camera's functionality: support for scene modes, color effects, white balance, ISO, exposure compensation/lock, selfie with "screen flash", HD video and more.
- Handy remote controls: timer (with optional voice countdown), auto-repeat mode (with configurable delay).
- Option to take photo remotely by making a noise, or by voice command "cheese".
- Configurable volume keys and user interface.
- Upside-down preview option for use with attachable lenses.
- Overlay a choice of grids and crop guides.
- Optional GPS location tagging (geotagging) of photos and videos; for photos this includes compass direction (GPSImgDirection, GPSImgDirectionRef).
- Apply date and timestamp, location coordinates, and custom text to photos; store date/time and location as video subtitles (.SRT).
- Panorama, including for front camera.
- Support for HDR (with auto-alignment and ghost removal) and Exposure Bracketing.
- Support for Camera2 API: manual controls (with optional focus assist); burst mode; RAW (DNG) files; slow motion video.
- Noise reduction (including low light night mode) and Dynamic range optimisation modes for better quality photos.
- Options for on-screen histogram, zebra stripes, focus peaking.
- Focus bracketing mode.
- Completely free, and no ads in the app (I only run ads on the website). Open Source.

(Some features may not be available on all devices, as they may depend on hardware features, or the Android version.)

Download on Google Play.

Also see alternative download sites.

Open Camera is completely free, however if you wish you can show your appreciation by supporting me.

Open Camera Blog ~ Discussion Forums ~ Code Repository (Git)

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Requirements

Open Camera requires Android 4.0.3 or better. Some features may only be available on some devices (it may depend on Android version, or require specific support from the camera/device).

Note that it's not possible for me to test Open Camera on every Android device out there, let alone in combination with different Android versions (or especially alternative ROMs). Please test before using Open Camera to photo/video your wedding etc :)

See here for some details on issues with various devices.

Instructions

Credits

Open Camera is written by Mark Harman with additional contributors, see credits for details.

Privacy policy

See my privacy policy for details.

Licence and Terms of Service

Open Camera is released under the GPL v3 or later. The source code is available from https://sourceforge.net/projects/opencamera/files/ . Also see *"Can I use the Open Camera source code in my app?"* under the FAQ.

Open Camera uses the AndroidX/Jetpack libraries, under Apache license version 2.0.

The following files are used in Open Camera: