Photo Editing (GIMP) Introduction

2023-1-TR01-KA122-SCH-000164113
My Digital Companion My Teacher
Invited Expert Activity Schedule 13th-17th May, 2024

Links

https://tinyurl.com/ordu2024

https://github.com/projetoalfobre/Ordu-may2024

https://tinyurl.com/ordu2024links

https://www.zotero.org/groups/5515969/ordu_-_digital_course_contents/library

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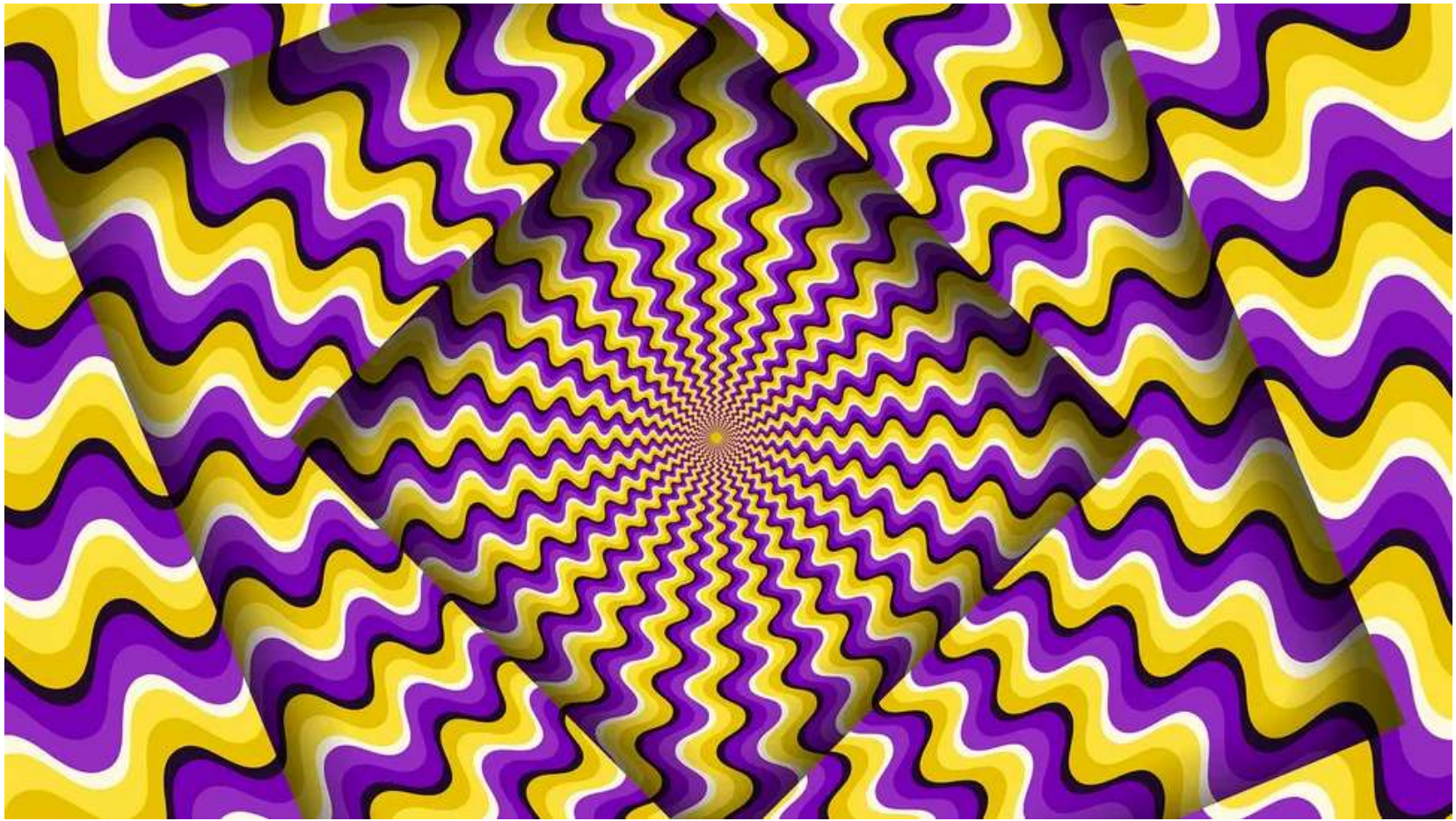
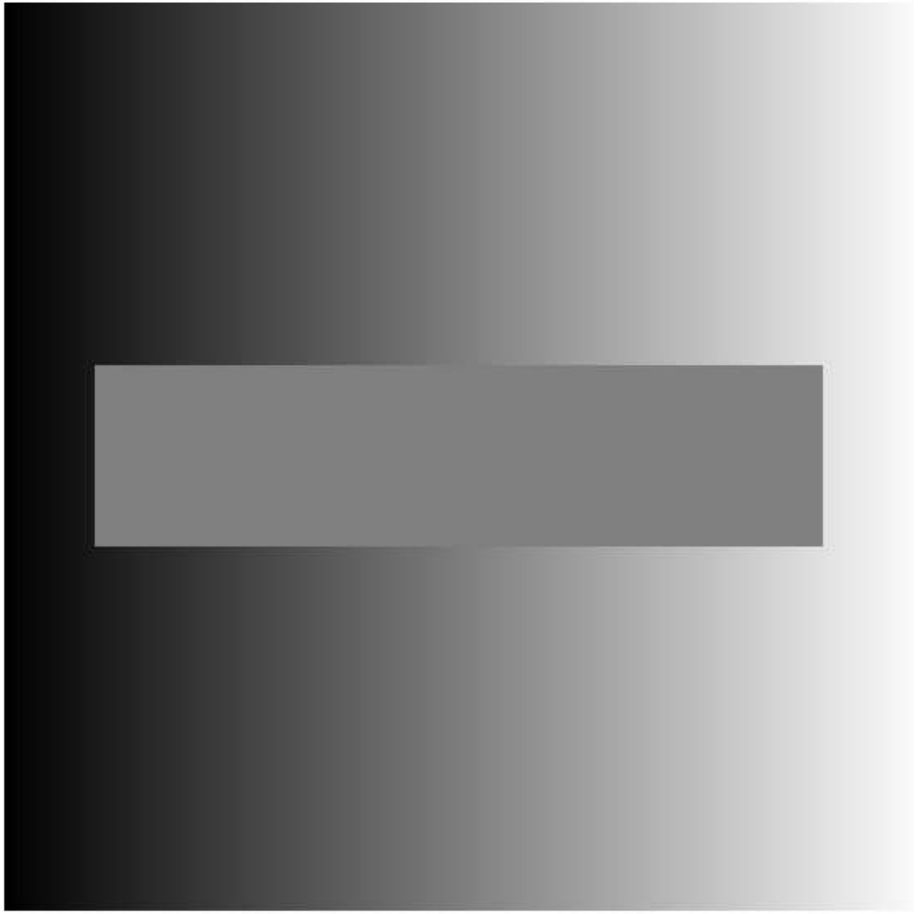
Summary

Let’s just talk a little bit about digital images...

Digital images = brain +



Digital images = brain + context +



Digital images = brain + context +

Digital images = brain + context + creativity

Raster and Vector

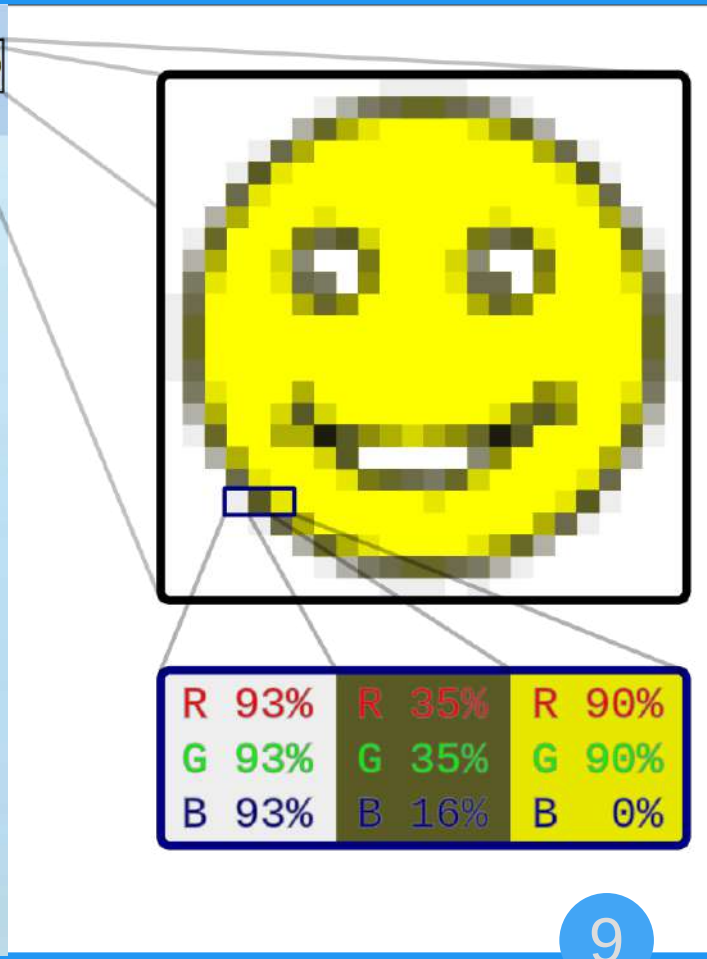
Raster image (bitmap)

Represents a two-dimensional image as a rectangular array of square **pixels** (picture element). A bitmap can be monochrome, grayscale, or color. Pixels are normally formed in the **RGB** (Red, Green, Blue) pattern.

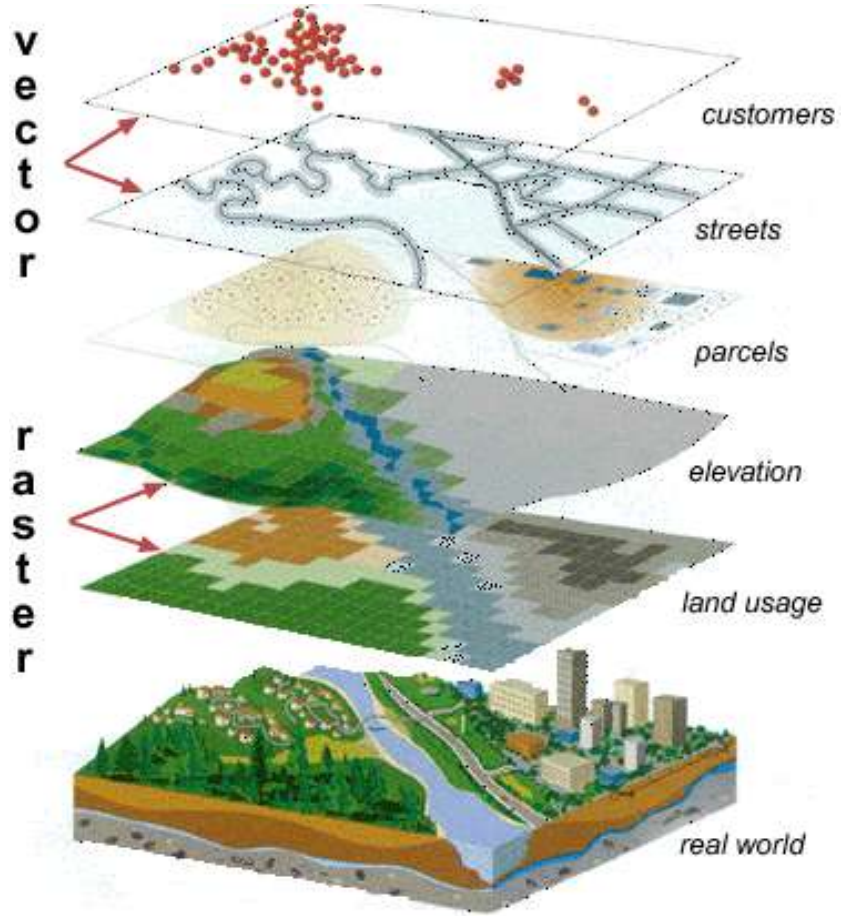
Vector graphics

Images are created by points, lines, curves and polygons (mathematical formulas). Vector drawings are based on **vectors** (also called **paths**), which gothrough locations called control/anchor points or **nodes**.

Raster and Vector



Raster and Vector data

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 <path
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32v768a32 32 0 0 1-32 32H192a32 32 0 0 1-32-32V96a32 32 0 0 1 32-
32z"
    id="path4532" />
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    id="path4534" />
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    d="M384 832h256v-64a128 128 0 1 0-256 0v64zm128-256a192 192 0
0 1 192 192v128H320V768a192 192 0 0 1 192-192zM320
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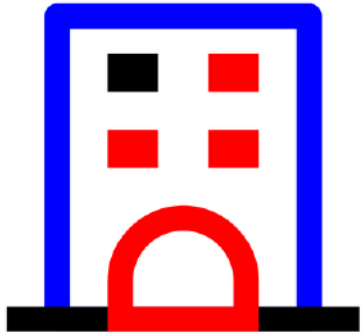


Comparison – Raster Vs Vector

	Raster image (bitmap)	Vector graphic
Uses	Photography	Digital illustration and logos
Resolution	Limited resolution,	Infinite resolution
Dissemination	Large. Many reader/editing software.	Less software (Inkscape, Adobe Illustrator)
Conversion	Does not convert to vector but can be traced	Convert to raster
File size	Larger files	Lighter files
File types	**JPEG** (Joint Photographic Experts Group), BMP (Bitmap Image File), **PNG** (Portable Network Graphic), GIF (Graphic Interchange Format), TIFFs (Tagged Image Format File) and WebP.	AI (Adobe Illustrator), EPS (Encapsulated PostScript), PDF (Portable Document Format) e **SVG** (Scalable Vector Graphics)

Comparison – Raster formats

	Compression	Transparency / Alpha	Animation	Colors	Filesize
JPG	Lossy	No	No	24-bit (true color) (16,777,216)	Small
PNG	Lossless	Yes	APNG	24-bit (true color) (16,777,216)	Large
GIF	Lossless	Yes, but...	Yes	8-bit (256)	Small
TIFF	Variável	Yes	No	Varies	Large
WebP	Lossless, Lossy	Yes	Yes	24-bit (true color) (16,777,216)	Small/ Large

Recommendations

XCF (GIMP native format) for editing

JPG for photos

PNG for graphic elements

GIF for… animated GIFs,

TIFF for high resolution and long term storage

RAW for capture

WebP for web

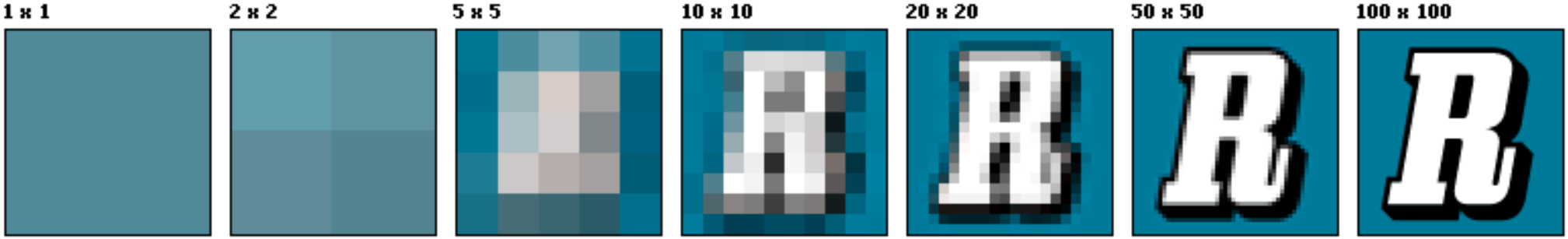
Raster image resolution

The level of detail, **higher resolutions mean more detail** in the image.

Canon EOS 5DS – 51 MP (8688 × 5792)

YouTube 1080p (1920 x 1080)

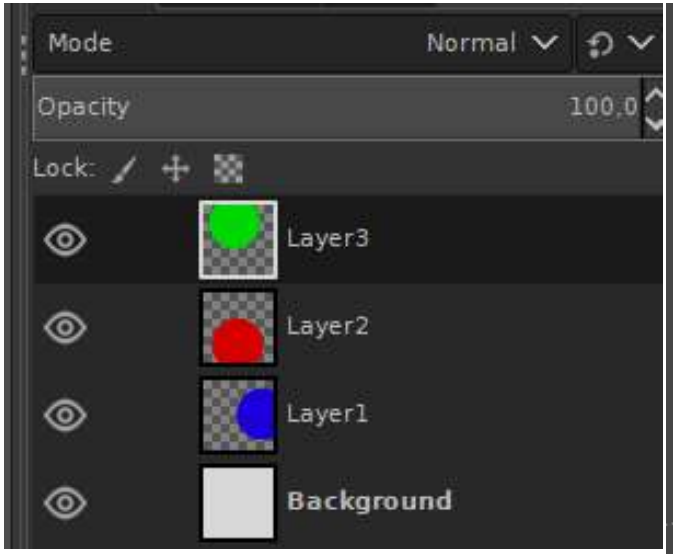
72 ppi e 300 dpi

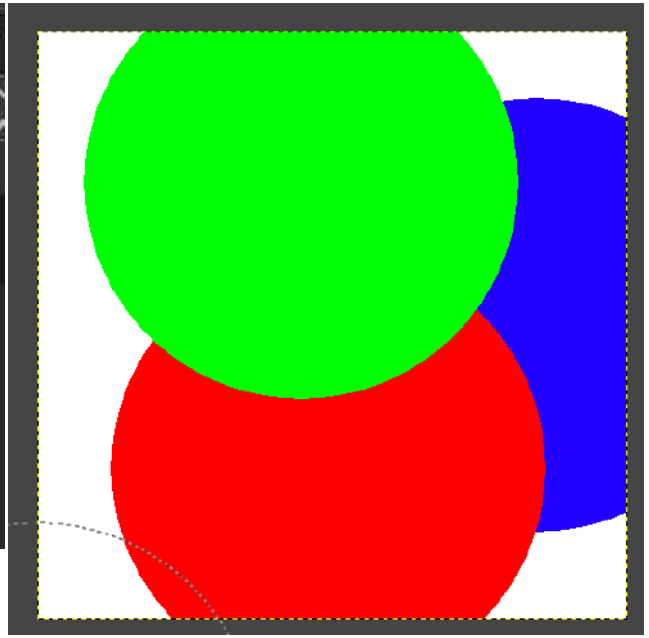


Raster image printing

PPI	Pixels	mm	Paper size
300	9921×14008	840×1186	A0
300	7016×9921	594×840	A1
300	4961×7016	420×594	A2
300	3508×4961	297×420	A3
300	2480×3508	210×297	A4
300	1748×2480	148×210	A5
300	1240×1748	105×148	A6
300	874×1240	74×105	A7
300	614×874	52×74	A8

Image, layers and RGB blend modes



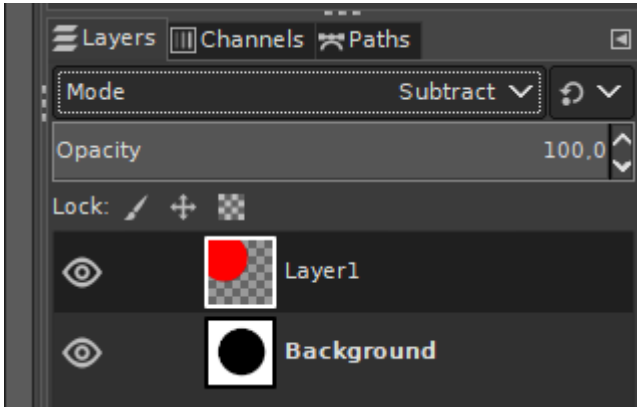


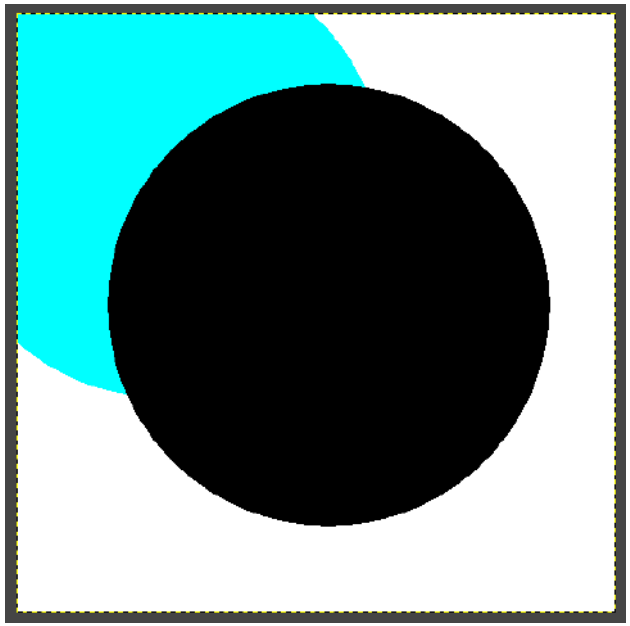
1 image

Multiple layers stacked

How layers blend? RGB Pixel Math

Image, layers and RGB blend modes





Red **G**reen **B**lue

Black = 0 0 0

White = 100 100 100

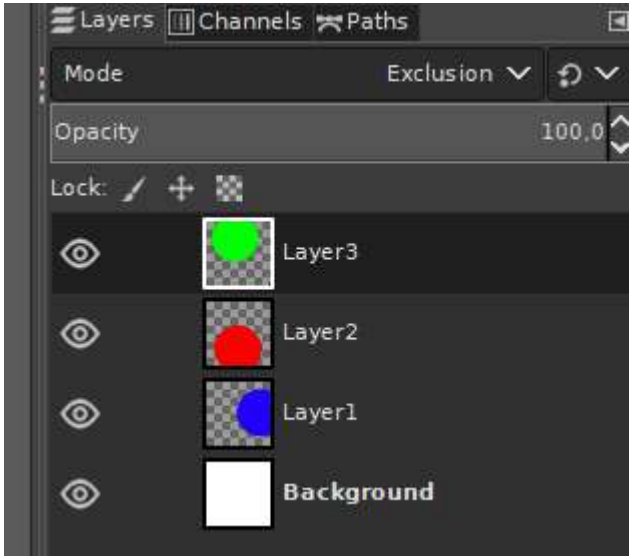
Red = 100 0 0

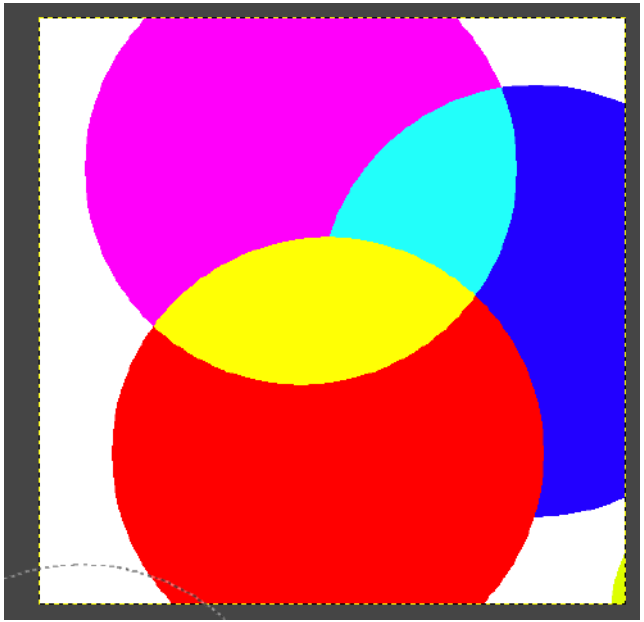
Green = 0 100 0

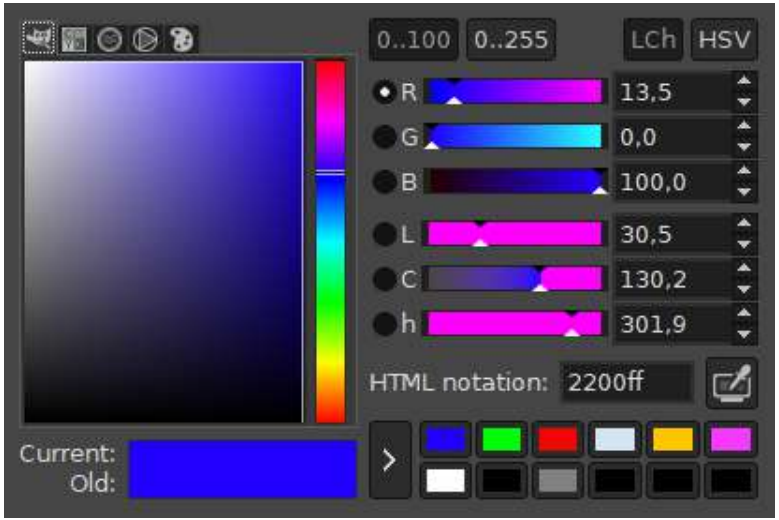
Blue = ?

0 0 0 - 100 0 0 = 0 0 0
100 100 100 - 100 0 0 = 0 100 100

Image, layers and blend modes







Why GIMP?

https://www.gimp.org/

GNU Image Manipulator Program

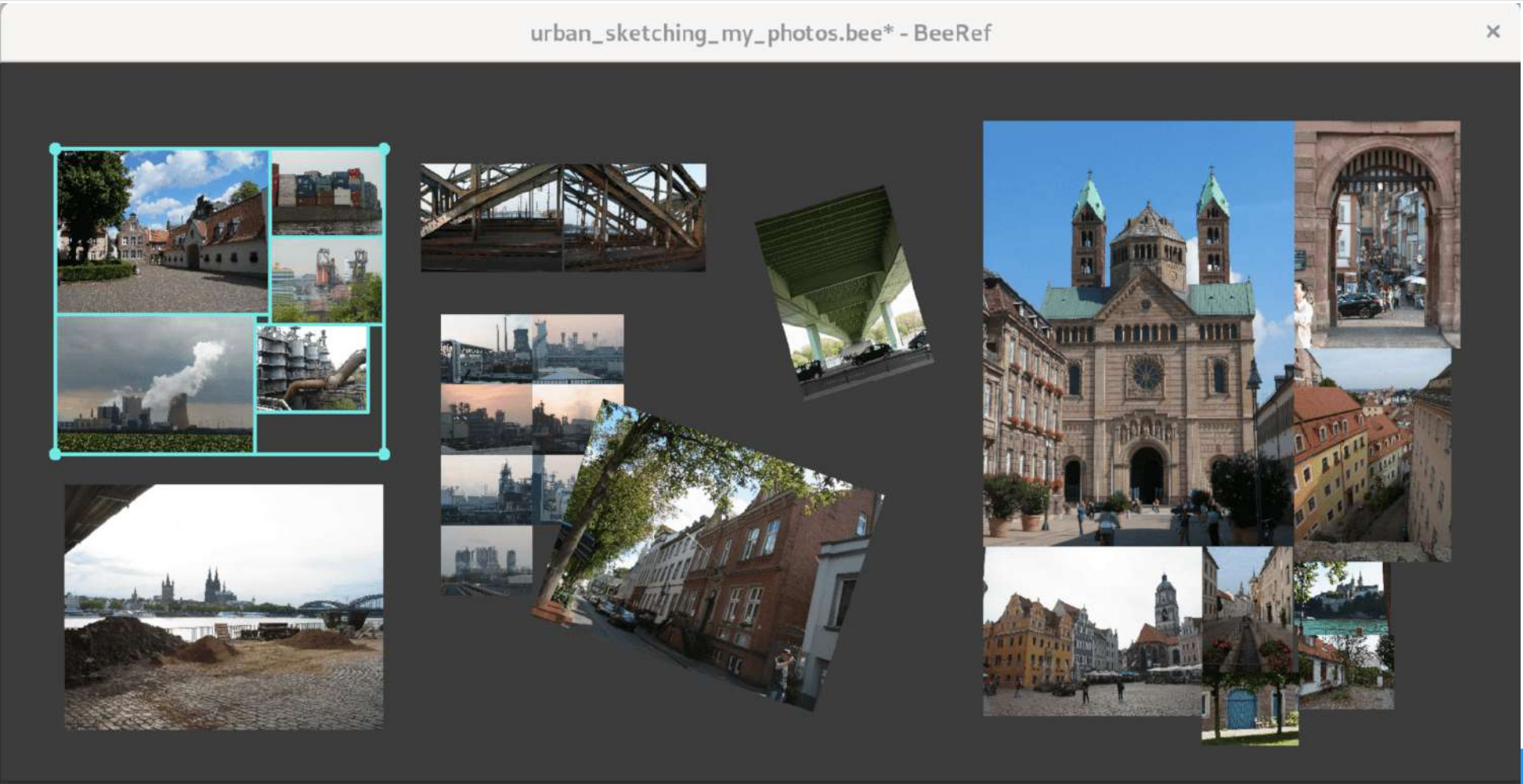
Generic image editor

Mainly Bitmap/Raster

Free and Open Source Software

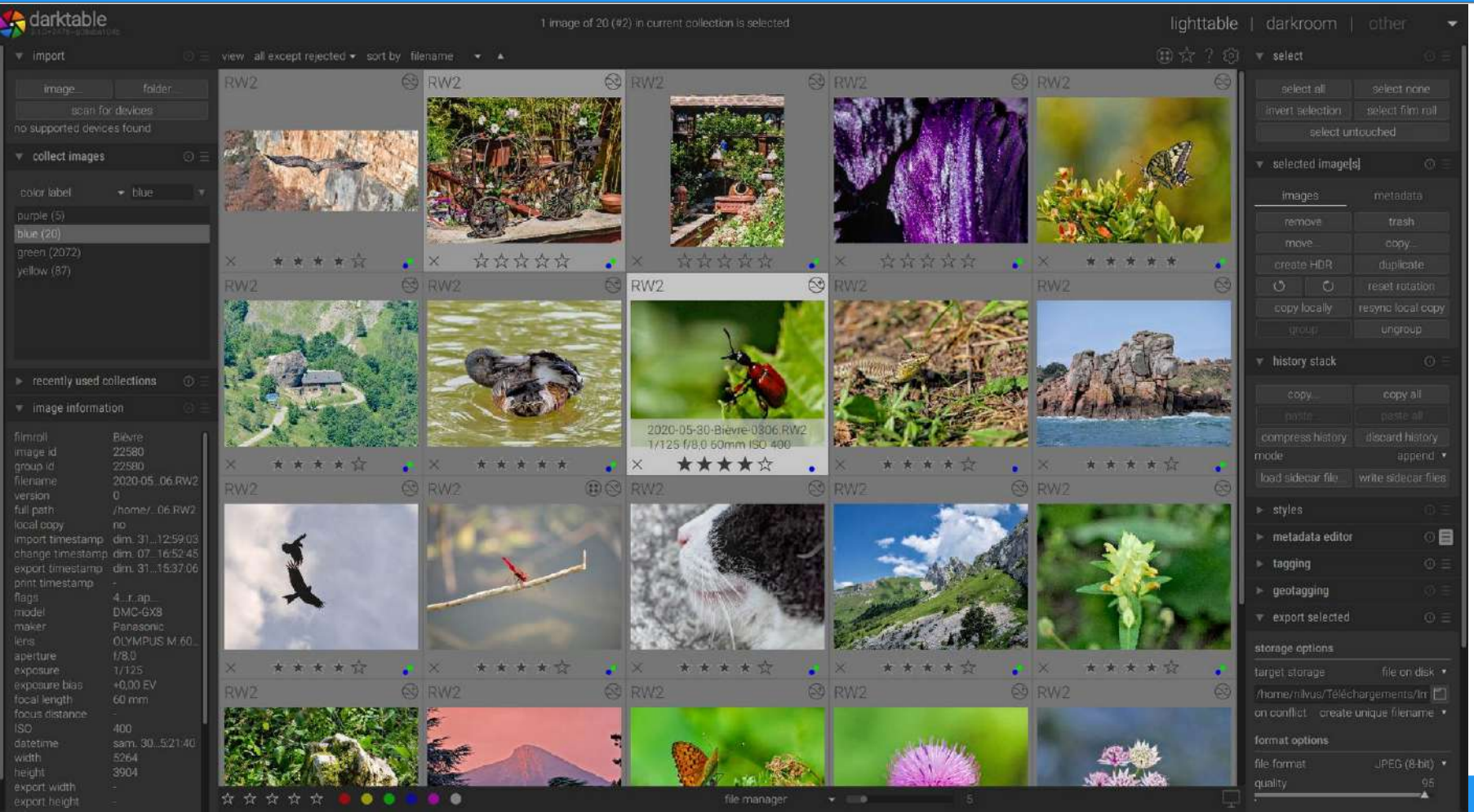
BeeRef

https://beeref.org/



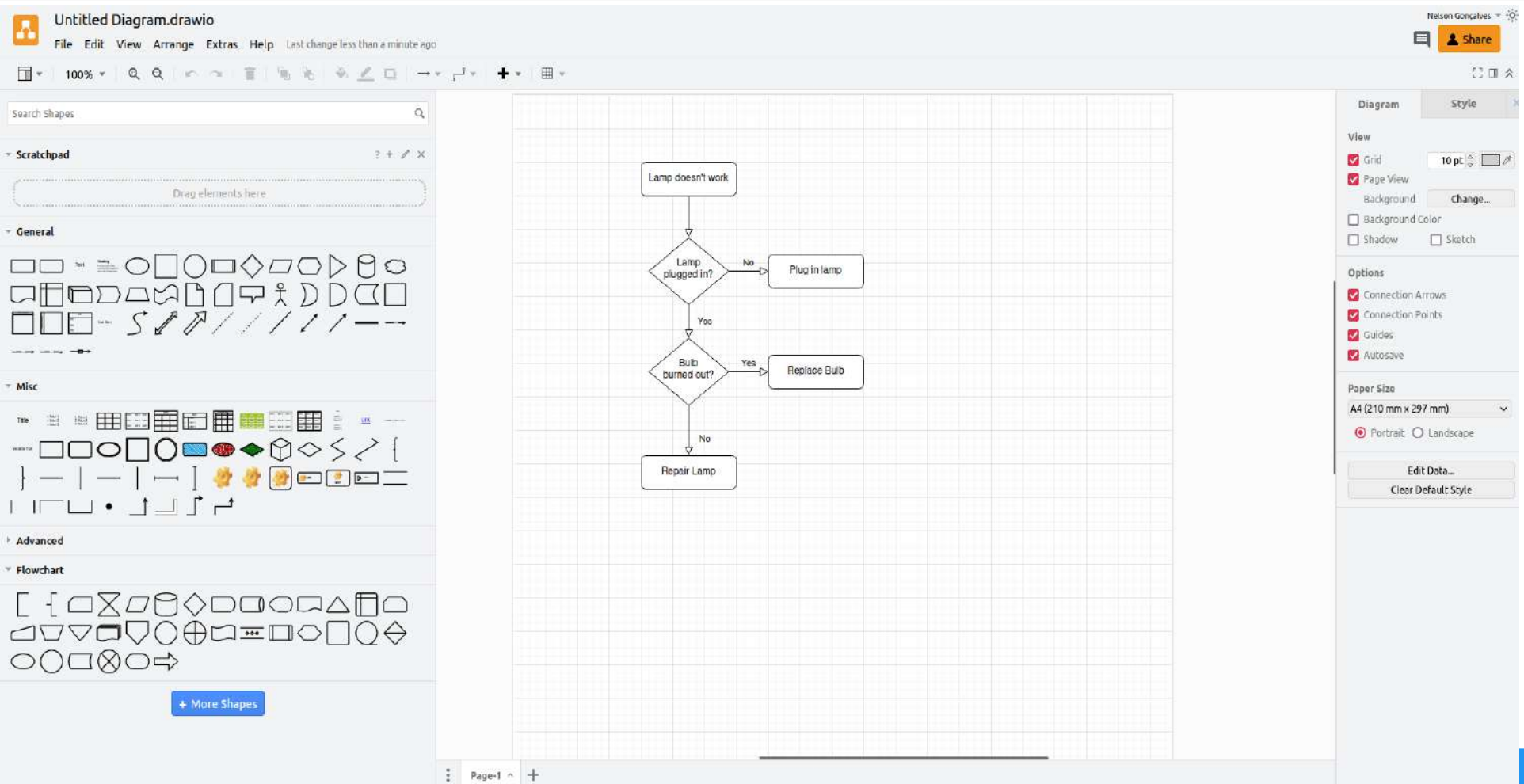
Darktable

https://www.darktable.org/



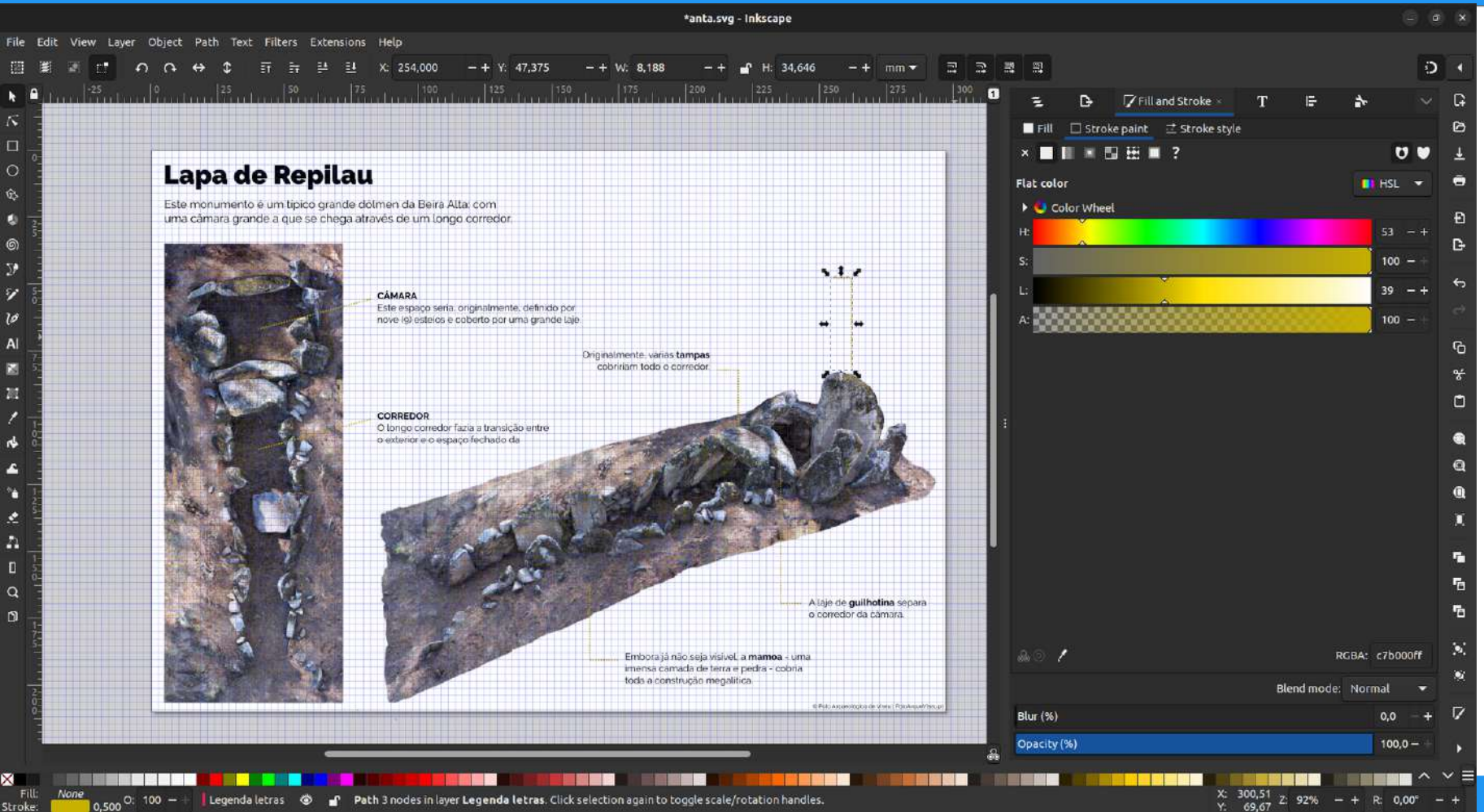
Draw.io

https://www.drawio.com/



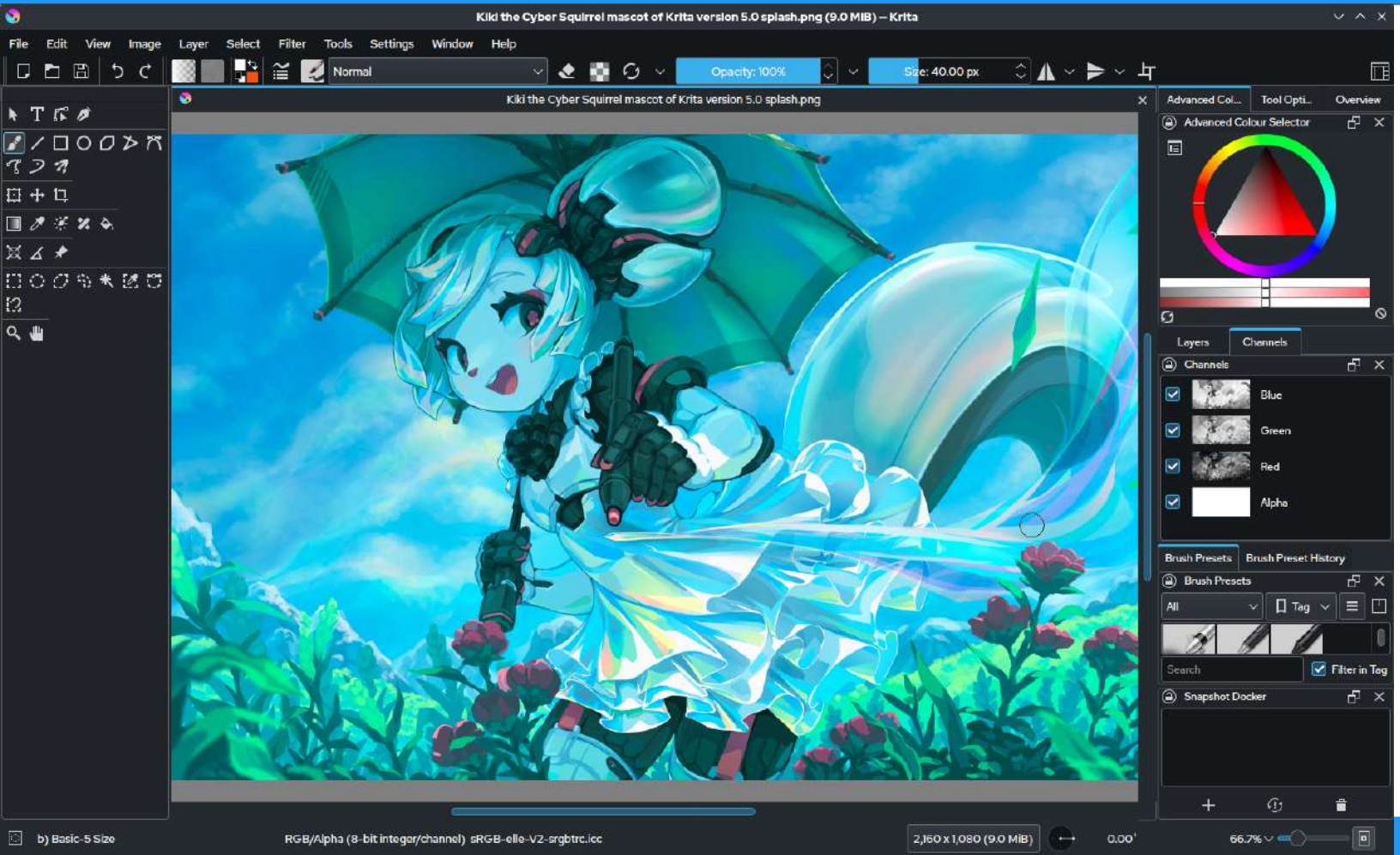
Inkscape

https://inkscape.org/



Krita

https://krita.org



Digikam

https://www.digikam.org