

Processing Images Guidelines and Tools !



420-141-VA - GAME PROGRAMMING 1 - VANIER COLLEGE

Outline

1. Planning for all Images Needed in-game
2. Image Formats and Properties
3. Searching images on the web
4. Making Background Transparent
5. Cropping images
6. Scaling Images
7. Gimp Tutorials



1. Planning for all Images Needed in-game



Planning for all Images Needed in-game (Cont.)

BRAINSTORMING

When implementing a new game, you must come up with an idea

Find many ideas and pick the best one

Try to understand all the different interactions between game elements, draw on paper or on the board

Especially think of the "edge cases" where gameplay would be challenging and plan solutions for these cases

Planning for all Images Needed in-game (Cont.)

BREAKING DOWN THE WORK

Once you have a great game idea, break down the different assets you need for the game

- Playable Game objects
- Computer Controlled objects
- Props and backgrounds

Make a list of all the images you need, make a quick prototype to establish the resolution for your images

2. Image Formats and Properties

- **Bitmap (.bmp):** No compression, transparency supported with RGBA format
- **JPEG (.jpg):** Supports compression, not transparency (Good for photographs)
- **Portable Network Graphics (.png):** Supports Compression and Transparency
- **GIF (.gif):** Supports transparency and animation
 - GIF images are not natively supported in Greenfoot
 - You can import the [GifImage](#) class to enable support

A good website for finding free GIF images is giphy.com



An RGBA file is a **color bitmap image format** created by [Silicon Graphics](#) (SGI). It is similar to the .RGB file as it supports color RGB channels with an alpha channel.

3. Searching images on the web

Content online is regulated with Licenses, using someone else's work without permission is considered **stealing**

Image contents is owned by the author of the image

The owner of the image may grant permissions to other people by assigning a license to his image

- **Copyright notice:** (example below). You need written permission to use contents or modify contents.
- **Creative Commons License:** right to share, use, and build upon the material
- **Fair Dealing:** is an exception in the **Canadian** Copyright Act (for research, education, etc.)
- **Fair use:** Equivalent of Fair Dealing in the USA ([overview](#))

In **Google Images** and **Bing images**, you can filter images according to their license

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Searching images on the web (Cont.)

Search results for "rock paper scissors lizard spock" on Google Images.

Filters applied: All Creative Commons (License), SafeSearch: Moderate.

Results include:

- Rock Paper Scissors Lizard Spock
- Rock Paper Scissor 25
- Rock Paper Scissors Lizard Spock Game
- Meme Rock Paper Scissors Lizard Spock
- Rock Paper Scissors Lizard Spock
- Rock Paper Scissors Lizard Spock Rules

Three image thumbnails are displayed below the filters:

- 1- Filter results
- 2- Specify license (All creative commons)

Searching images on the web (Cont.)

The screenshot shows the Google Images search interface. The search bar contains the text "paper scissors rock". The navigation bar includes links for All, Images, Videos, Maps, Shopping, and More. The "Tools" button is highlighted with a red box. Below the navigation bar, there are filters for Size, Color, Usage rights, Type, and Time. The "Usage rights" filter is also highlighted with a red box. A red arrow points from the "Usage rights" filter to a text box containing the following list:

- 1- Tools
- 2- Usage rights (Labeled for reuse with modifications)

The search results display a grid of images. The first image is a diagram titled "Rock-paper-scissors - Wikipedia" showing the cycle: Scissors beats paper, Paper beats rock, and Rock beats scissors. The second image is titled "How to Win at Rock, Paper, Scissors ..." and shows various hand gestures. The third image is titled "Rock-paper-scissors victory over police ..." and shows a hand gesture. The fourth image is titled "Rock, paper, scissors" and shows a hand gesture.

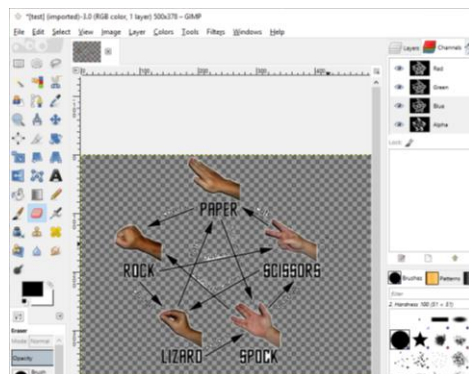
4. Making Background Transparent

There are many Tools allowing to do this operation.

In **Gimp** ([tutorial](#))

- Using Select Tools
- Add Alpha Channel to image
- Export image as PNG

Gimp

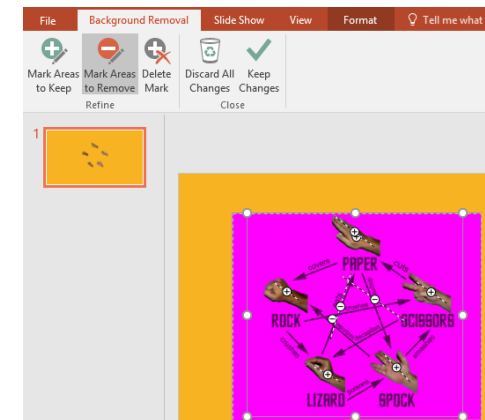


In **PowerPoint**,

Format -> Remove Background

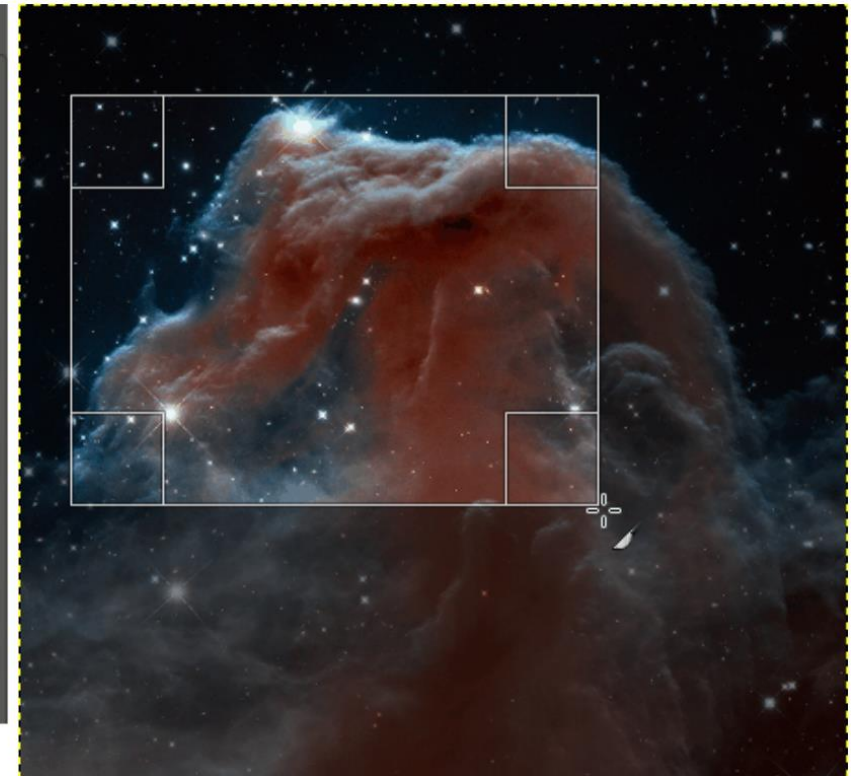
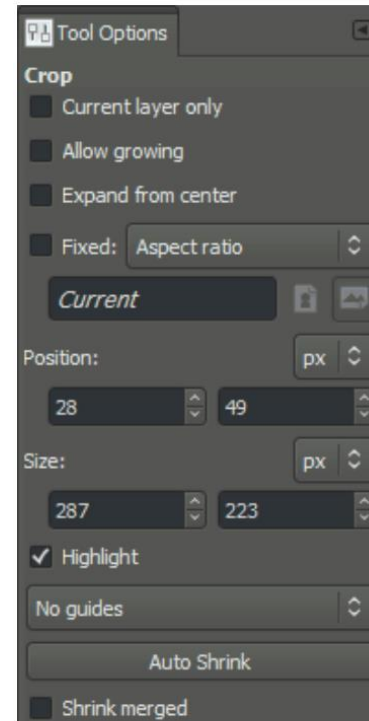
- Mark areas to keep and remove
- Save as Picture by right-clicking on the image

PowerPoint



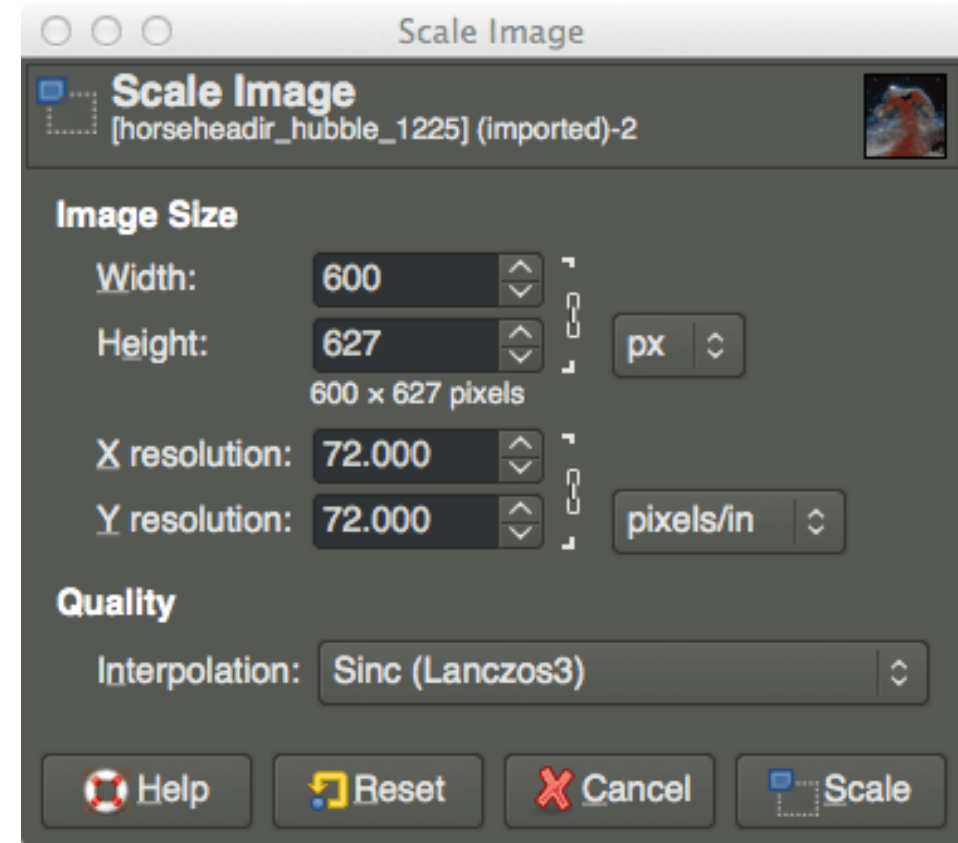
5. Cropping images with GIMP

- Cropping an image allows removing an unwanted area in an image and keep only the region of interest.
- Once an image is cropped, a portion of the image is lost and can't be recovered
- With GIMP:
- **Tools -> Transform Tools -> Crop**



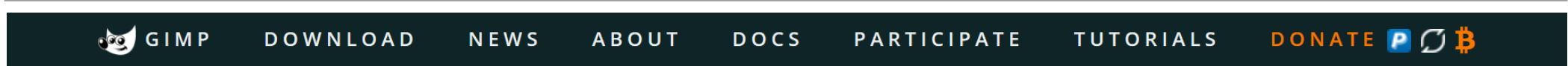
6. Scaling Images with GIMP

- The **aspect ratio** of an image is the width / height
- To prevent distortion effect, the aspect ratio should generally be preserved when scaling an image
- Press the lock to toggle enabling or disabling the aspect ratio lock
- Select the units for the width and height (px means pixels)
- Quality changes the algorithm for resizing the image



7. Gimp Tutorials

<https://www.gimp.org/tutorials>



Tutorials

Beginner

GIMP Quickies

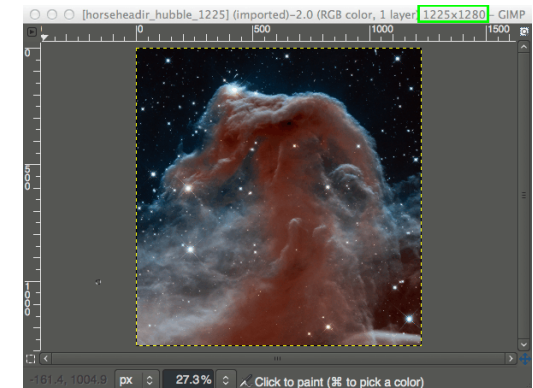
Use GIMP for simple graphics needs without having to learn advanced image manipulation methods.

Simple Floating Logo

This tutorial walks through some basic image and layer manipulation techniques.

Making a Circle-Shaped Image

How to create a circular-shaped image



Questions

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