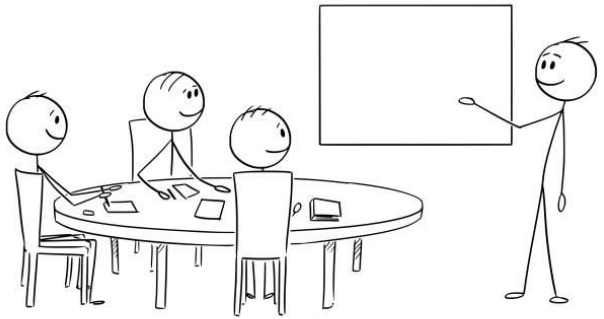
Mr. Mina
12th Grade Computer Vision
9-12.CT.4, 9-12.CT.5, 9-12.CT.8, 9-12.CT.9

Lesson 08 - Edge detection Project

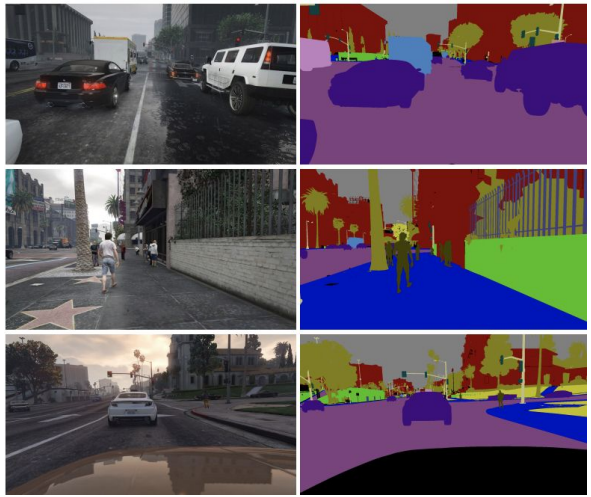
EQ: How can we apply edge detection in real life?

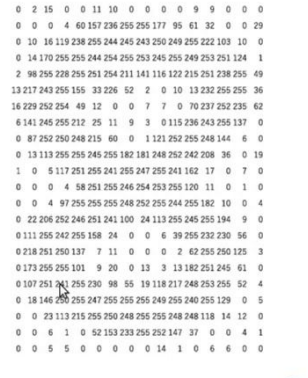
Do Now

Search and Share: Using the internet, find a practical application of edge detection or convolution that you find cool or interesting. Summarize how it helps in this situation and come up with a question you might have. **Be prepared to share with the class.**



Edge detection applications

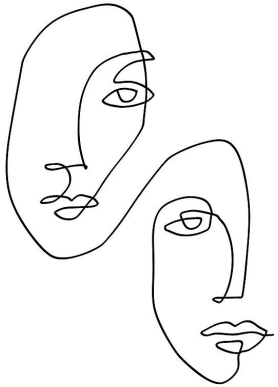


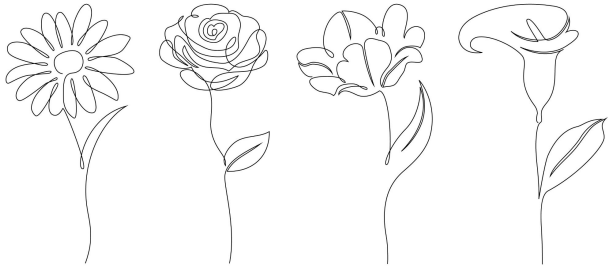


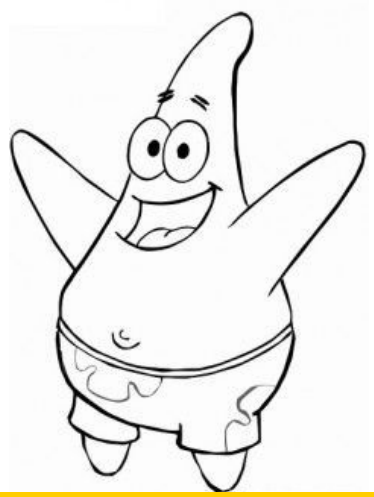
Seam Carving (content-aware image resizing)

Line Art Generator - Project

In pairs of your choosing, you will write code that takes an in image path and generates a line art version of that image. The background colors and foreground/line colors should be supplied by the user.



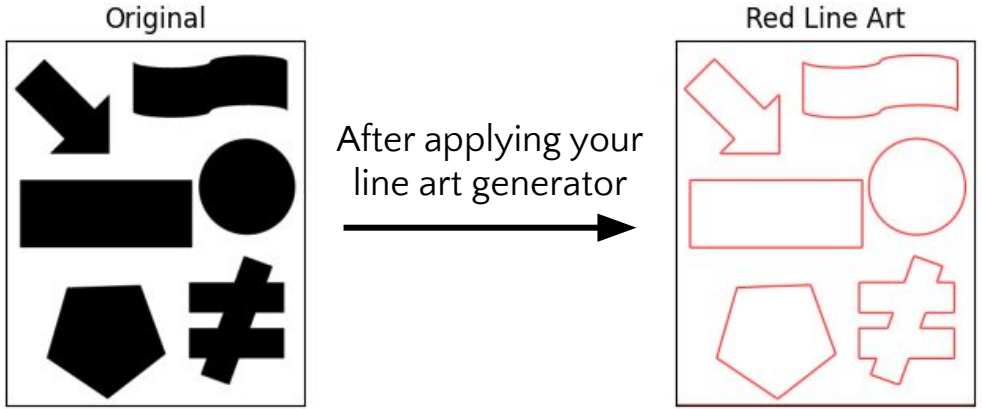




Line Art Generator - Requirements

Your code **must**:

- ❏ Accept file path, background/foreground color (rgb) as user input
- ❏ Extract the important lines from an image using different kernels
- ❏ Recolor the line image to be the user's colors
- ❏ Formal requirements on Google Classroom



Line Art Generator - Notes

Your code **should**:

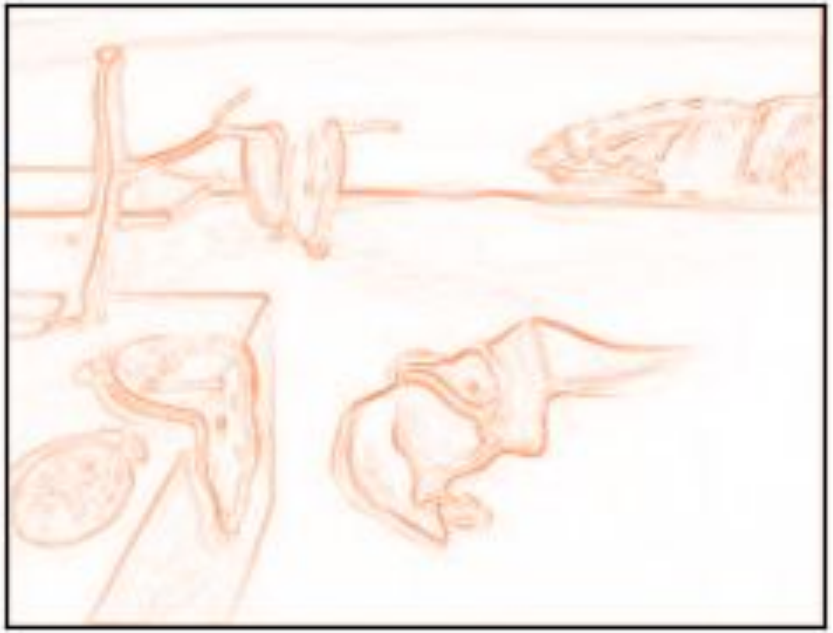
- Account for noisy images
- Normalize images to be in the proper range (0-255)
- Make the color intensity correspond to the strength of the edge
  - Alpha-blending would be helpful for this
- Use helper functions to reuse code and debug it in sections

Protip: You should definitely refer to class slides, your homework, and class code!

Edge strength to line intensity

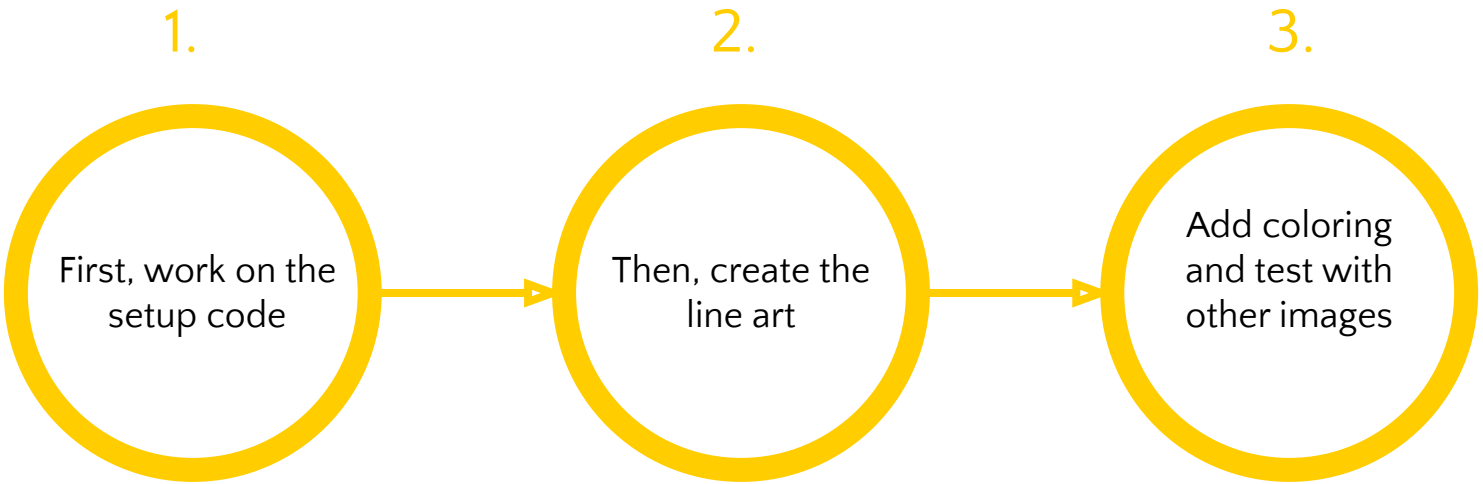
Original

Line Art



Line Art Generator - Timeline

You should tackle this project in three stages



Let's get it started!

Any questions ?

Project description and starter code on Google Classroom.

Project due Monday.