Assignment2

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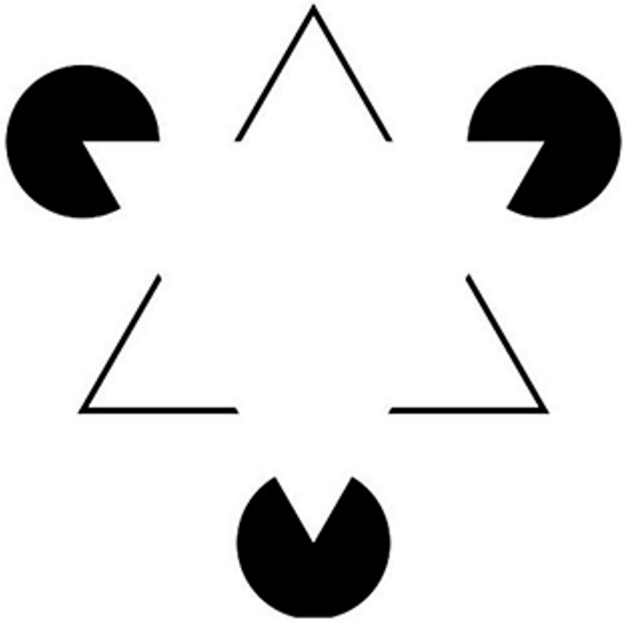
Part B.2.2: The result for test image pairs:

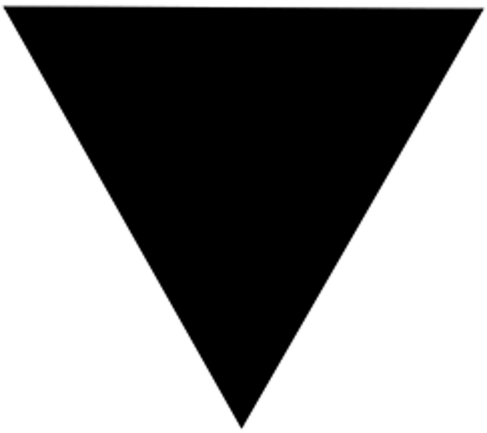
Original image: input-color.jpg

alpha image: image-alpha.bmp

Original image: Kanizsa-triangle-tiny.png

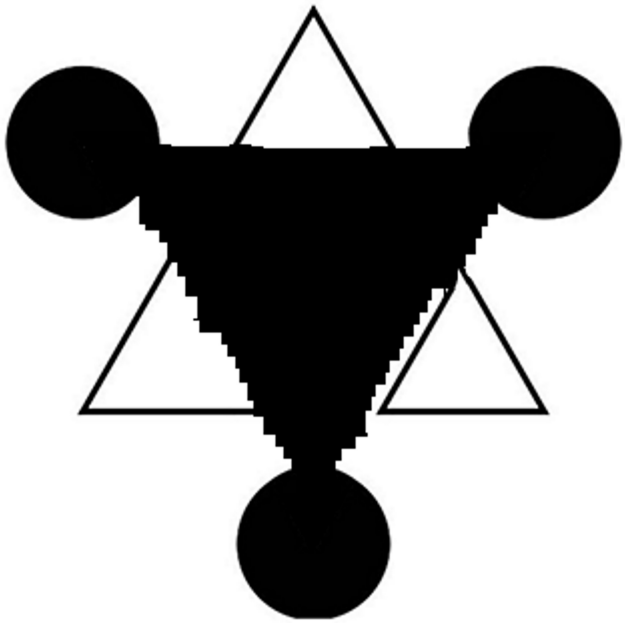


Alpha image: Kanizsa-triangle-mask-tiny.png

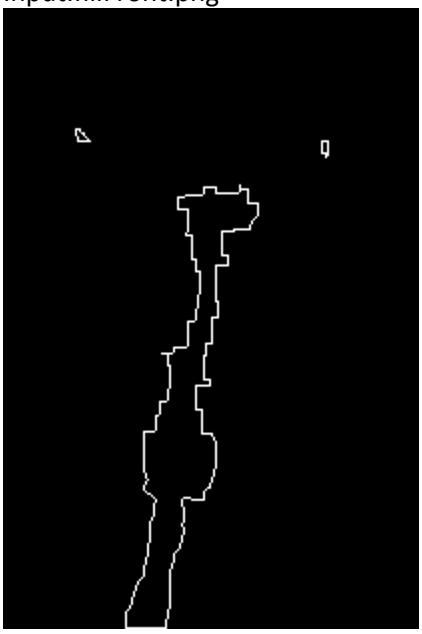


Input.inpainted.png

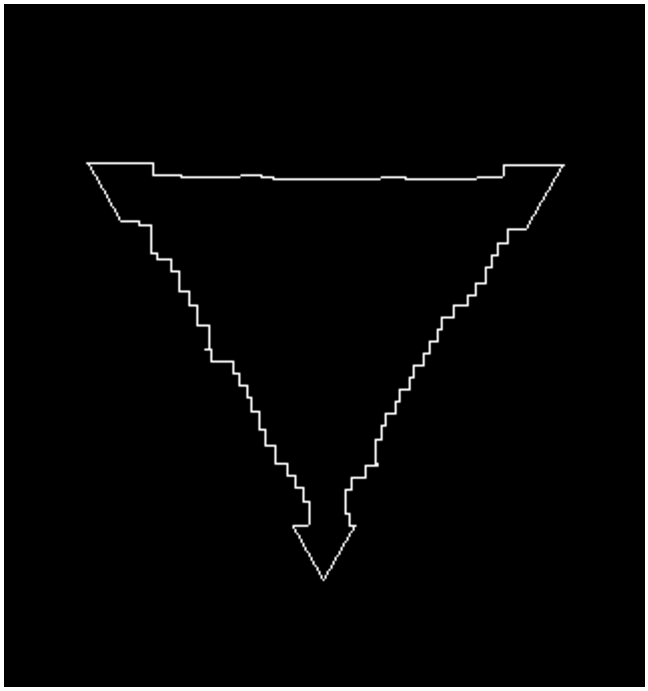
Kanizsa.inpainted.png



Input.fillFront.png

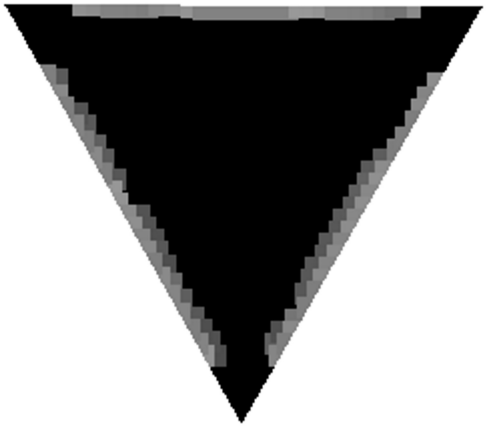


Kanizsa.fillFront.png



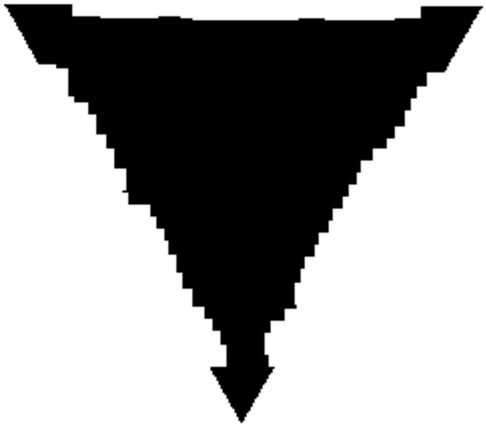
Input.confidence.png

Kanizsa.confidence.png



Input.filled.png

Kanizsa.filled.png

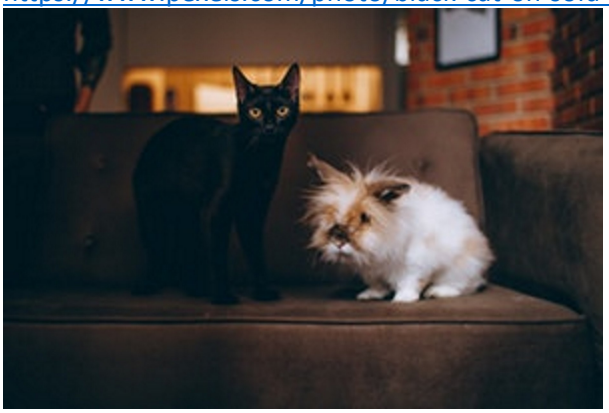


My own photo:

Succeeded one: Source1.png

Failed one: Source2.png

(This is the picture I found online.
The original author is Helena Lopes.
This photo can be used for free
for commercial and noncommercial use.)
(Original website:
https://www.pexels.com/photo/black-cat-on-sofa-1931370/)

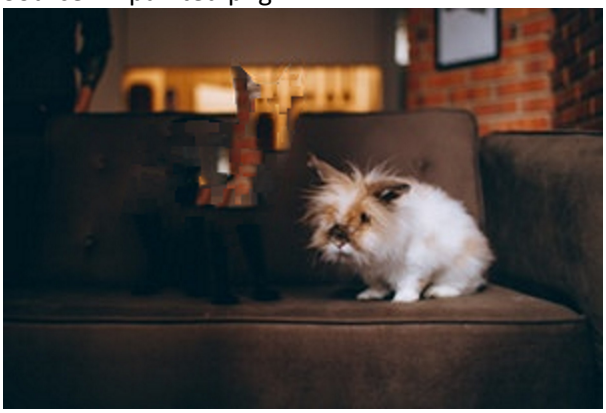


Mask1.png

Mask2.png

Source1.inpainted.png

Source2.inpainted.png



The first one is good.
The first reason is that it can find all reference from the background.
The second reason is that the boundaries between background elements(the forest, the lake and the grassland) are very clear. This is the problem for the example below. As the gradient is clear, the algorithm will fill the unfilled boundary first from existed boundary. However, when gradient is not clear,, the algorithm will cross the boundary and fill the wrong place, like the moon example in slides.

The one with dog is bad.
The cat I selected is very dark and it's color is close to the sofa without enough light. As a result, the edge between cat and the sofa is not very clear. The algorihm will firstly try to find the area of the head of the cat, as the gradient is higher and the confidence is also higher. When the psihatP closer to the neck, the gradient to identify the cat and sofa is too weak to move horizontally. As a result, the algorithm will still identify the part as window(as it truly contains some pixels from windows when it filled before) and failed to fill in sofa.