

# Joel Clouser

Completed



Original



#Joel Clouser 10/22/2021

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def collage():
    setMediaPath()
    original = makePicture(getMediaPath("collagePic.jpg"))
    mod1 = makePicture(getMediaPath("collagePic.jpg"))
    mod2 = makePicture(getMediaPath("collagePic.jpg"))
    mod3 = makePicture(getMediaPath("collagePic.jpg"))
    mod4 = makePicture(getMediaPath("collagePic.jpg"))
    canvas = makeEmptyPicture(getWidth(original) * 2, getHeight(original) * 2)
    sig = makePicture(getMediaPath("sig.jpg"))
    sig = scaleDown(sig, 5)

    grayScale(mod2)
    lightenGrayscale(mod3)
    negative(mod4)
    edge(mod1)

    copy(mod1, canvas, 0, 0)
    copy(mod2, canvas, getWidth(mod2), 0)
    copy(mod3, canvas, 0, getHeight(mod3))
    copy(mod4, canvas, getWidth(mod4), getHeight(mod4))
    copy(original, canvas, int(getWidth(canvas)/2-getWidth(original)/2), int(getHeight(canvas)/2-getHeight(original)/2))
    chromaSig(sig, canvas, 1000, 800)
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show(canvas)
writePictureTo(canvas, "joel_clouser.jpg")

def copy(pic, target, targX, targY):
    targetX = targX
    for x in range(getWidth(pic)):
        targetY = targY
        for y in range(getHeight(pic)):
            pixel = getPixel(pic,x,y)
            tx = getPixel(target,targetX,targetY)
            setColor(tx,getColor(pixel))
            targetY = targetY + 1
        targetX = targetX + 1

def grayScale(pic):
    for p in getPixels(pic):
        intensity = (getRed(p) + getGreen(p) + getBlue(p))/3
        setColor(p, makeColor(intensity, intensity, intensity))

def lightenGrayscale(pic):
    for px in getPixels(pic):
        red = getRed(px)
        green = getGreen(px)
        blue = getBlue(px)
        setRed(px, red + 75)
        setGreen(px, green + 75)
        setBlue(px, blue + 75)
    grayScale(pic)

def negative(pic):
    for each_pixel in getPixels(pic):
        r = getRed(each_pixel)
        g = getBlue(each_pixel)
        b = getGreen(each_pixel)
        neg = makeColor(150-r, 150-g, 150-b)
        setColor(each_pixel, neg)

def edge(picture):
    for px in getPixels(picture):
        x = getX(px)
        y = getY(px)
        if y < getHeight(picture) - 1 and x < getWidth(picture) - 1:
            sum = getRed(px) + getGreen(px) + getBlue(px)
            botrt = getPixel(picture, x+1, y+1)
            sum2 = getRed(botrt) + getGreen(botrt) + getBlue(botrt)

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diff = abs(sum2-sum)
newcolor = makeColor(diff, diff, diff)
setColor(px, newcolor)

def chromaSig(source, target, targetX, targetY):
    for x in range(0, getWidth(source)):
        for y in range(0, getHeight(source)):
            px = getPixel(source, x, y)
            color = getColor(px)
            targ = getPixel(target, x + targetX, y + targetY)
            if distance (black, color) < 200:
                setColor(targ, white)

def scaleDown(pic, factor):
    canvas = makeEmptyPicture(int(getWidth(pic) / factor), int(getHeight(pic) / factor))
    scale(pic, canvas, 1.0 / factor)
    return canvas

def scale(src, canvas, factor):
    sourceX = 0
    for targetX in range(0, int(getWidth(src) * factor)):
        sourceY = 0
        for targetY in range(0, int(getHeight(src) * factor)):
            color = getColor(getPixel(src, int(sourceX), int(sourceY)))
            setColor(getPixel(canvas, targetX, targetY), color)
            sourceY = sourceY + 1.0 / factor
            sourceX = sourceX + 1.0 / factor

collage()

```