

Matt Dennison

Completed



Original



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###Matt Dennison 3-15-2020###
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def collage():  
    setMediaPath()  
    pic=makePicture(getMediaPath("IMG_4881.jpg"))  
    sign=makePicture(getMediaPath("IMG_4883.jpg"))  
    signWidth=getWidth(sign)  
    signHeight=getHeight(sign)  
    width=getWidth(pic)  
    height=getHeight(pic)  
    canvas=makeEmptyPicture(width,height)  
    smallSign=makeEmptyPicture(signWidth/15,signHeight/15)  
    smallPic=makeEmptyPicture(width/2,height/2)  
    smallPic2=makeEmptyPicture(width/2,height/2)  
    smallPic3=makeEmptyPicture(width/2,height/2)  
    smallPic4=makeEmptyPicture(width/2,height/2)  
    smallPic5=makeEmptyPicture(width/2,height/2)  
    smallWidth=getWidth(smallPic)  
    smallHeight=getHeight(smallPic)  
    eyeBar(pic)  
    scale(pic,smallPic)  
    posterize(smallPic)  
    blur(smallPic)  
    copy(smallPic,canvas,width/2,height/2)  
    scale(pic,smallPic2)  
    grayScale(smallPic2)  
    copy(smallPic2,canvas,0,0)
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scale(pic, smallPic3)
negative(smallPic3)
copy(smallPic3, canvas, width/2, 0)
scale(pic, smallPic4)
edgeDetect(smallPic4)
blur(smallPic4)
copy(smallPic4, canvas, 0, height/2)
scale(pic, smallPic5)
t1=crop(smallPic5, 0, 0, smallWidth/3, smallHeight/3)
t2=crop(smallPic5, smallWidth/3, 0, (smallWidth/3)*2, smallHeight/3)
t3=crop(smallPic5, (smallWidth/3)*2, 0, smallWidth, smallHeight/3)
m1=crop(smallPic5, 0, smallHeight/3, smallWidth/3, smallHeight/3*2)
m2=crop(smallPic5, smallWidth/3, smallHeight/3, smallWidth/3*2, smallHeight/3*2)
m3=crop(smallPic5, smallWidth/3*2, smallHeight/3, smallWidth, smallHeight/3*2)
b1=crop(smallPic5, 0, smallHeight/3*2, smallWidth/3, smallHeight)
b2=crop(smallPic5, smallWidth/3, smallHeight/3*2, smallWidth/3*2, smallHeight)
b3=crop(smallPic5, smallWidth/3*2, smallHeight/3*2, smallWidth, smallHeight)
copy(t1, canvas, 0, 0)
copy(t2, canvas, (width/12)*5, 0)
copy(t3, canvas, (width/6)*5, 0)
copy(m1, canvas, 0, height/12*5)
copy(m2, canvas, width/12*5, height/12*5)
copy(m3, canvas, width/6*5, height/12*5)
copy(b1, canvas, 0, height/6*5)
copy(b2, canvas, width/12*5, height/6*5)
copy(b3, canvas, width/6*5, height/6*5)
scale2(sign, smallSign)
smallSign2=rotate(smallSign, getWidth(smallSign), getHeight(smallSign))
chromakey(smallSign2, canvas, width-getWidth(smallSign2), height-getHeight(smallSign2))
copy(smallSign2, canvas, (width-getWidth(smallSign2)), (height-getHeight(smallSign2)))
explore(canvas)

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def eyeBar(picture_in):
    startX=341
    startY=305
    endX=457
    endY=345
    for px in getPixels(picture_in):
        x=getX(px)
        y=getY(px)
        if (startX <= x <= endX) and (startY<= y <= endY):
            setColor(px, black)

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def scale(picture_in, picture_out):
    sourceX=0

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for x in range(0,int(getWidth(picture_in)/2)):
    sourceY=0
    for y in range(0,int(getHeight(picture_in)/2)):
        color=getColor(getPixel(picture_in,sourceX,sourceY))
        setColor(getPixel(picture_out,x,y),color)
        sourceY=sourceY+2
    sourceX=sourceX+2

def scale2(picture_in,picture_out):
    sourceX=0
    for x in range(0,int(getWidth(picture_in)/15)):
        sourceY=0
        for y in range(0,int(getHeight(picture_in)/15)):
            color=getColor(getPixel(picture_in,sourceX,sourceY))
            setColor(getPixel(picture_out,x,y),color)
            sourceY=sourceY+15
        sourceX=sourceX+15

def posterize(source):
    for p in getPixels(source):
        r=getRed(p)
        g=getGreen(p)
        b=getBlue(p)
        luminance=(r+g+b)/3
        if luminance <55:
            setColor(p,black)
        if luminance >= 55 < 165:
            setColor(p,gray)
        if luminance >= 165:
            setColor(p,white)

def copy(pic,canvas,startX,startY):
    newX=startX
    for x in range(0,getWidth(pic)):
        newY=startY
        for y in range(0,getHeight(pic)):
            px=getPixel(pic,x,y)
            pz=getPixel(canvas,newX,newY)
            setColor(pz,getColor(px))
            newY=newY+1
        newX=newX+1

def grayScale(picture_in):
    for p in getPixels(picture_in):
        intensity=(getRed(p)+getGreen(p)+getBlue(p))/3

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    setColor(p,makeColor(intensity,intensity,intensity))

def blur(picture_in):
    target=duplicatePicture(picture_in)
    for x in range(1,getWidth(picture_in)-1):
        for y in range(1,getHeight(picture_in)-1):
            top=getPixel(picture_in,x,y-1)
            left=getPixel(picture_in,x-1,y)
            bottom=getPixel(picture_in,x,y+1)
            right=getPixel(picture_in,x+1,y)
            center=getPixel(target,x,y)
            newRed=(getRed(top)+getRed(left)+getRed(bottom)+getRed(right)+getRed(center))/5
            newGreen=(getGreen(top)+getGreen(left)+getGreen(bottom)+getGreen(right)+getGreen(center))/5
            newBlue=(getBlue(top)+getBlue(left)+getBlue(bottom)+getBlue(right)+getBlue(center))/5
            setColor(center,makeColor(newRed,newGreen,newBlue))
    return(target)

def negative(picture_in):
    for px in getPixels(picture_in):
        red=getRed(px)
        green=getGreen(px)
        blue=getBlue(px)
        negColor=makeColor(255-red,255-green,255-blue)
        setColor(px,negColor)

def luminance(pixel):
    r=getRed(pixel)
    g=getGreen(pixel)
    b=getBlue(pixel)
    return (r+g+b)/3

def edgeDetect(picture_in):
    for px in getPixels(picture_in):
        x=getX(px)
        y=getY(px)
        if y < getHeight(picture_in)-1 and x < getWidth(picture_in)-1:
            botrt=getPixel(picture_in,x+1,y+1)
            thislum=luminance(px)
            brlum=luminance(botrt)
            if abs(brlum-thislum)>5:
                setColor(px, blue)
            if abs(brlum-thislum)<=5:
                setColor(px,(makeColor(getGreen(px),getBlue(px)+25,getRed(px))))

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def crop(picture_in, startX, startY, endX, endY):
    src=picture_in
    canvas=makeEmptyPicture((getWidth(picture_in)/3), (getHeight(picture_in)/3))
    targetX=0
    for sourceX in range(startX, endX):
        targetY=0
        for sourceY in range(startY, endY):
            color=getColor(getPixel(src, sourceX, sourceY))
            setColor(getPixel(canvas, targetX, targetY), color)
            targetY=targetY+1
        targetX=targetX+1
    return canvas

def chromakey(source, bg, x1, y1):
    for px in getPixels(source):
        x=getX(px)
        y=getY(px)
        if (getRed(px) >= 135):
            bgpx=getPixel(bg, x+x1, y+y1)
            bgcol=makeColor(getColor(bgpx))
            setColor(px, bgcol)
        else:
            color=getColor(px)
            color=makeDarker(color)
            setColor(px, color)

def rotate(picture_in, srcWidth, srcHeight):
    src=picture_in
    canvas=makeEmptyPicture(srcHeight, srcWidth)
    targetX=0
    width=getWidth(picture_in)
    for sourceX in range(0, srcWidth):
        targetY=0
        for sourceY in range(0, srcHeight):
            color=getColor(getPixel(src, sourceX, sourceY))
            setColor(getPixel(canvas, targetY, width-targetX-1), color)
            targetY=targetY+1
        targetX=targetX+1
    return canvas

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