Justin Barton

Completed

Original

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#justin barton (10/13/2021)
def collage():
  setMediaPath()
  pic = scaleDown(makePicture(getMediaPath("wolf.jpg")), 5)
  mod1 = scaleDown(makePicture(getMediaPath("wolf.jpg")), 5)
  mod2 = scaleDown(makePicture(getMediaPath("wolf.jpg")), 5)
  mod3 = scaleDown(makePicture(getMediaPath("wolf.jpg")), 5)
  mod4 = scaleDown(makePicture(getMediaPath("wolf.jpg")), 5)
  mod5 = scaleDown(makePicture(getMediaPath("wolf.jpg")), 5)
  canvas = makeEmptyPicture(getWidth(pic) * 2, getHeight(pic) * 3)
  sig = makePicture(getMediaPath("sig.jpg"))
  sig = scaleDown(sig, 5)

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

  copy(mod1, canvas, 0, 0)
  copyReverse(mod2, canvas, getWidth(canvas) -1, 0)
  copy(mod3, canvas, 0, getHeight(mod3))
  copyReverse(mod4, canvas, getWidth(canvas) - 1, getHeight(mod4))
  copy(mod5, canvas, 0, getHeight(mod5) * 2)
  copyReverse(pic, canvas, getWidth(canvas) - 1, getHeight(pic) * 2)
  chromaSig(sig, canvas, getWidth(canvas) - getWidth(sig), getHeight(canvas) - getHeight(sig))
  show(canvas)
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  writePictureTo(canvas, r"C:\Users\Drago\OneDrive\Desktop\CS
120\collage_project_justin.barton\justin_barton.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 copyReverse(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 negative(pic):
  for px in getPixels(pic):
    r = getRed(px)
    g = getGreen(px)
    b = getBlue(px)
    neg = makeColor(255 - r, 255 - g, 255 - b)
    setColor(px, neg)

def edge(pic):
  for px in getPixels(pic):
    x = getX(px)
    y = getY(px)
    if y < getHeight(pic) - 1 and x < getWidth(pic) - 1:
      sum = getRed(px) + getGreen(px) + getBlue(px)
      botrt = getPixel(pic, x + 1, y + 1)
      sum2 = getRed(botrt) + getGreen(botrt) + getBlue(botrt)
      diff = abs(sum2 - sum)
      newcolor = makeColor(diff, diff, diff)
      setColor(px, newcolor)
```

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

def increaseRed(pic):
  for px in getPixels(pic):
    value = getRed(px)
    setRed(px, value * 2.5)

def mirrorVertical(source):
  mirrorPoint = getWidth(source) / 2
  width = getWidth(source)
  for y in range(0, getHeight(source)):
    for x in range(0, mirrorPoint):
      leftPixel = getPixel(source, x, y)
      rightPixel = getPixel(source, width - x -1, y)
      color = getColor(leftPixel)
      setColor(rightPixel, color)

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()
```