Davis Knight

Completed

Originals

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#Davis Knight | 10/17/2021
#Original picture is by Johnell Pannell

def collage():
  setMediaPath()
  pic_list = []
  for i in range(9):
    pic = makePicture(getMediaPath("city.jpg"))
    pic_list.append(pic)
  original = pic_list[0]
  canvas = makeEmptyPicture(getWidth(original), getHeight(original))
  sig = makePicture(getMediaPath("sig.jpg"))
  sig = scaleIt(sig, 1.7)
  #copy(original, canvas, 0, 0)
  #show(canvas)


  mod1 = aesthetic(pic_list[1])
  mod2 = edge(pic_list[2])
  mod3 = makeYellow(pic_list[3])
  mod4 = negative(pic_list[4])
  mod5 = edgeDetect(pic_list[5])
  mod6 = aesthetic(pic_list[6])


  copy(original, canvas, 0, 0, getWidth(original), getHeight(original))
  copy(mod1, canvas, 0, 0, getWidth(mod1)/4+150, getHeight(mod1)-200)
  copy(mod2, canvas, 0, getHeight(mod2)-75, getWidth(mod2), getHeight(mod2))
  copy(mod6, canvas, getWidth(mod6)/2 + 100, 0, getWidth(mod6), getHeight(mod6)-25)
  copy(mod3, canvas, 0, getHeight(mod3)/2 - 50, getWidth(mod3)/4,getHeight(mod3)-75-50)
  copy(mod4, canvas, getWidth(mod4)/2, 75 + 50, getWidth(mod4), getHeight(mod4)/2 + 50)
  copy(mod5, canvas, (getWidth(mod5)/4)+75, 75, getWidth(mod5)/2-75,getHeight(mod5)-150)
  chromaSig(sig, canvas, 800, 550)
  show(canvas)
  writePictureTo(canvas, "davis_knight.jpg")



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


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

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


def aesthetic(pic):
  for px in getPixels(pic):
    value=getBlue(px)
    setBlue(px, value * 1.1)
    value=getGreen(px)
    setGreen(px, value * 0.2)
    value=getRed(px)
    setRed(px, value * 1.6)
  return pic

def makeYellow(pic):
  for px in getPixels(pic):
    setBlue(px, getBlue(px)*0.1)
  return pic

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


def negative(pic):
  for px in getPixels(pic):
    red = getRed(px)
    green = getGreen(px)
    blue = getBlue(px)
    negColor = makeColor(255-red, 255-green, 255-blue)
    setColor(px, negColor)
  return pic
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def luminance(pixel):
  r = getRed(pixel)
  g = getGreen(pixel)
  b = getBlue(pixel)
  return (r+g+b)/3

def edgeDetect(source):
  for px in getPixels(source):
    x = getX(px)
    y = getY(px)
    if y < getHeight(source)-1 and x < getWidth(source)-1:
      botrt = getPixel(source,x+1,y+1)
      thislum = luminance(px)
      brlum = luminance(botrt)
      if abs(brlum-thislum) > 10:
        setColor(px,black)
      if abs(brlum-thislum) <= 10:
        setColor(px,white)
  return source

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)
      targPx = getPixel(target, x + targetX, y + targetY)
      if distance(black, color) < 200:
        setColor(targPx, yellow)


collage()
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