def collage():
    pic5 = makePicture("5-aaa.jpg")
    top_text = makePicture("this_cat.png")
    bottom_text = makePicture("well_now.png")
    sig = makePicture("sig.jpg")
    scream1 = scaleDown(pic5, 12)
    scream2 = scaleDown(pic5, 12)
    scream3 = scaleDown(pic5, 12)
    scream4 = scaleDown(pic5, 12)
    scream5 = scaleDown(pic5, 12)
    scream6 = scaleDown(pic5, 12)
    scream7 = scaleDown(pic5, 12)
    scream8 = scaleDown(pic5, 12)
    scream9 = scaleDown(pic5, 12)
    canWidth = getWidth(scream1) * 3 + 99
    canHeight = getHeight(scream1) * 3 + 99
    screamDimensions = getWidth(scream1)
    canvas = makeEmptyPicture(canWidth, canHeight)
maxBlue(scream1)
maxRed(scream2)
maxGreen(scream3)
mirrorVertical(scream4)
maxRed(scream4)
mirrorVertical(scream6)
maxBlue(scream6)
maxGreen(scream7)
maxBlue(scream8)
maxRed(scream9)

addBorder(canvas)

copy(scream1, canvas, 50, 50)
copy(scream2, canvas, 50, screamDimensions + 50)
copy(scream3, canvas, 50, screamDimensions * 2 + 50)

copy(scream4, canvas, screamDimensions + 50, 50)
copy(scream5, canvas, screamDimensions + 50, screamDimensions + 50)
copy(scream6, canvas, screamDimensions + 50, screamDimensions * 2 + 50)

copyReverse(scream7, canvas, screamDimensions * 3 + 49, 50)
copyReverse(scream8, canvas, screamDimensions * 3 + 49, screamDimensions + 50)
copyReverse(scream9, canvas, screamDimensions * 3 + 49, screamDimensions * 2 + 50)

small_top_text = scaleDown(top_text, 2)
copy(small_top_text, canvas, 150, 5)
small_bottom_text = scaleDown(bottom_text, 2)
copy(small_bottom_text, canvas, 200, 680)
small_sig = scaleDown(sig, 20)
chromaSig(small_sig, canvas, 570, 660)

show(canvas)
writePictureTo(canvas, "powell_karina_collage.jpg")

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, red)

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

def copy(source, target, targX, targY):
    targetX = targX
    for sourceX in range(0, getWidth(source)):
        targetY = targY
        for sourceY in range(0, getHeight(source)):
            px = getPixel(source, sourceX, sourceY)
            tx = getPixel(target, targetX, targetY)
            setColor(tx, getColor(px))
        targetY = targetY + 1
        targetX = targetX + 1

def copyReverse(source, target, targX, targY):
    targetX = targX
    for sourceX in range(0, getWidth(source)):
        targetY = targY
        for sourceY in range(0, getHeight(source)):
            px = getPixel(source, sourceX, sourceY)
            tx = getPixel(target, targetX, targetY)
            setColor(tx, getColor(px))
        targetY = targetY + 1
        targetX = targetX - 1

def addBorder(canvas):
    rightside = getWidth(canvas) - 50
    bottom = getHeight(canvas) - 50
    for px in getPixels(canvas):
x = getX(px)
y = getY(px)
if y < 50:
    setColor(px, blue)
if y > bottom:
    setColor(px, blue)
if x < 50:
    setColor(px, blue)
if x > rightside:
    setColor(px, blue)

def maxBlue(picture):
    for p in getPixels(picture):
        setBlue(p, 255)

def maxRed(picture):
    for p in getPixels(picture):
        setRed(p, 255)

def maxGreen(picture):
    for p in getPixels(picture):
        setGreen(p, 255)

def mirrorVertical(source):
    mirrorPoint = getWidth(source)
    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)

collage()