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import PIL
from PIL import Image, ImageDraw

# read image and convert to RGB
image = Image.open("readonly/msi_recruitment.gif").convert('RGB')

# create a list with the resulting images
images = []


for i in (0.1, 0.5, 0.9):
        # divide the bands (red, green, blue).
        red, green, blue = image.split()

        # Map this band through a single value (intensity: 0.1, 0.5, 0.9).
        red = red.point(lambda x: x * I)

        # Merge the result and the other bands into a single image.
        merged = Image.merge('RGB', (red, green, blue))

        # Create a new image with the given mode and size.
        result = Image.new('RGB', (merged.width, 50))

        # Draw the resulting image.
        result_image = ImageDraw.Draw(result)

        # Add the required text
        fnt = ImageFont.truetype('readonly/fanwood-webfont.ttf', 50)
        result_image.text((10, 10), 'channel 0 intensity {}'.format(i), font = fnt, fill =
        merged.getpixel((0, 100)))

        # Create a "sheet" containing the new image with the proper height and width.
        sheet = PIL.Image.new(merged.mode, (merged.width, merged.height + result.height))
        sheet.paste(result, (0, merged.height))
        sheet.paste(merged, (0, 0))

        # Append the new image to the 'images' list.
        images.append(sheet)


for i in (0.1, 0.5, 0.9):
        red, green, blue = image.split()
        green = green.point(lambda x: x * i)
        merged = Image.merge('RGB', (red, green, blue))
        result = Image.new('RGB', (merged.width, 50))
        result_image = ImageDraw.Draw(result)
        fnt = ImageFont.truetype('readonly/fanwood-webfont.ttf', 50)
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        result_image.text((10, 10), 'channel 1 intensity {}'.format(i), font = fnt, fill =
        merged.getpixel((0, 100)))
        sheet = PIL.Image.new(merged.mode, (merged.width, merged.height + result.height))
        sheet.paste(result, (0, merged.height))
        sheet.paste(merged, (0, 0))
        images.append(sheet)


for i in (0.1, 0.5, 0.9):
        red, green, blue = image.split()
        blue = blue.point(lambda x: x * i)
        merged = Image.merge('RGB', (red, green, blue))
        result = Image.new('RGB', (merged.width, 50))
        result_image = ImageDraw.Draw(result)
        fnt = ImageFont.truetype('readonly/fanwood-webfont.ttf', 50)
        result_image.text((10, 10), 'channel 2 intensity {}'.format(i), font = fnt, fill =
        merged.getpixel((0, 100)))
        sheet = PIL.Image.new(merged.mode, (merged.width, merged.height + result.height))
        sheet.paste(result, (0, merged.height))
        sheet.paste(merged, (0, 0))
        images.append(sheet)


# create a contact sheet for displaying the 'images' list.
first_image = images[0]
contact_sheet = PIL.Image.new(first_image.mode, (first_image.width*3,first_image.height*3))
x=0
y=0

for img in images:
        # paste the current image into the contact sheet
        contact_sheet.paste(img, (x, y))
        # Now we update our X position. If it is going to be the width of the image, then we set
it to 0
        # and update Y as well to point to the next "line" of the contact sheet.
        if x+first_image.width == contact_sheet.width:
                x=0
                y=y+first_image.height
        else:
                x=x+first_image.width

# resize and display the contact sheet
contact_sheet = contact_sheet.resize((int(contact_sheet.width/2),int(contact_sheet.height/
2) ))
display(contact_sheet)
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channel 0 intensity 0.1
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channel 0 intensity 0.5
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channel 0 intensity 0.9
Master of Science in Information
channel 1 intensity 0.1
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channel 1 intensity 0.5
Master of Science in Information
channel 1 intensity 0.9
Master of Science in Information
channel 2 intensity 0.1
Master of Science in Information
channel 2 intensity 0.5
Master of Science in Information
channel 2 intensity 0.9