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from PIL import Image, ImageEnhance
from os import listdir
from os.path import isfile, join
import imageio



def isImage(file):
    try:
        bits = file.split(".")
        extension = bits[len(bits)-1]
        if extension == "png":
            return True
        return False
    except IndexError:
        return False


def getFileAddresses(folder):
    filenames = []
    for file in listdir(folder):
        if isfile(join(folder, file)):
            if isImage(file):
                filenames.append(join(folder, file))
    return filenames


def openImageFile(filename):
    return Image.open(filename)


def saveImageFile(file, file_type):
    try:
        file.save(file, file_type)
    except IOError:
        print("Error ", IOError)


def modifyFileName(image, add):
    arr = image.filename.split('.')
    return arr[0] + add + "." + arr[1], arr[1]


def flipLeftToRight(filename):
    input_image = openImageFile(filename)
    output_image = input_image.transpose(Image.FLIP_LEFT_RIGHT)
    output_filename, extension = modifyFileName(input_image, "_FLR")
    output_image.save(output_filename, extension)


def flipTopToBottom(filename):
    input_image = openImageFile(filename)
    output_image = input_image.transpose(Image.FLIP_TOP_BOTTOM)
    output_filename, extension = modifyFileName(input_image, "_FTB")
    output_image.save(output_filename, extension)


def rotate90(filename):
    input_image = openImageFile(filename)
    output_image = input_image.transpose(Image.ROTATE_90)
    output_filename, extension = modifyFileName(input_image, "_R90")
    output_image.save(output_filename, extension)


def rotate180(filename):
    input_image = openImageFile(filename)
    output_image = input_image.transpose(Image.ROTATE_180)
    output_filename, extension = modifyFileName(input_image, "_R180")
    output_image.save(output_filename, extension)
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def rotate270(filename):
    input_image = openImageFile(filename)
    output_image = input_image.transpose(Image.ROTATE_270)
    output_filename, extension = modifyFileName(input_image, "_R270")
    output_image.save(output_filename, extension)


def sharpen(filename):
    input_image = openImageFile(filename)
    enhancer = ImageEnhance.Sharpness(input_image)
    output_image = enhancer.enhance(2.0)
    output_filename, extension = modifyFileName(input_image, "_S2")
    output_image.save(output_filename, extension)


def blur(filename):
    input_image = openImageFile(filename)
    enhancer = ImageEnhance.Sharpness(input_image)
    output_image = enhancer.enhance(0.0)
    output_filename, extension = modifyFileName(input_image, "_B0")
    output_image.save(output_filename, extension)


def resize(filename, target=(528, 360)):
    input_image = openImageFile(filename)
    output_image = input_image.resize(target)
    output_filename, extension = modifyFileName(input_image, "")
    output_image.save(filename, extension)


def convertToRGB(filename):
    input_image = openImageFile(filename)
    output_image = input_image.convert("RGB")
    output_filename, extension = modifyFileName(input_image, "")
    output_image.save(filename, extension)


def performTransformationSet(filename):
    flipLeftToRight(filename)
    flipTopToBottom(filename)
    rotate90(filename)
    rotate180(filename)
    rotate270(filename)


def performTransformationSetWithBlurAndSharpen(filename):
    flipLeftToRight(filename)
    flipTopToBottom(filename)
    rotate90(filename)
    rotate180(filename)
    rotate270(filename)
    sharpen(filename)
    blur(filename)


def toNpArray(address):
    im = imageio.imread(address)
    return im

"""


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