

# Lab 9: Image Masking (10 pts)

## Setup

1. Locate your "CS102" folder
2. Download [lab09.zip](#)
3. Extract the content of the zip file to lab09 in your CS102 folder
4. Open "lab09.py" with Thonny
5. **READ THE COMMENTS**
6. **Submit lab09.py to Moodle when you are finished**

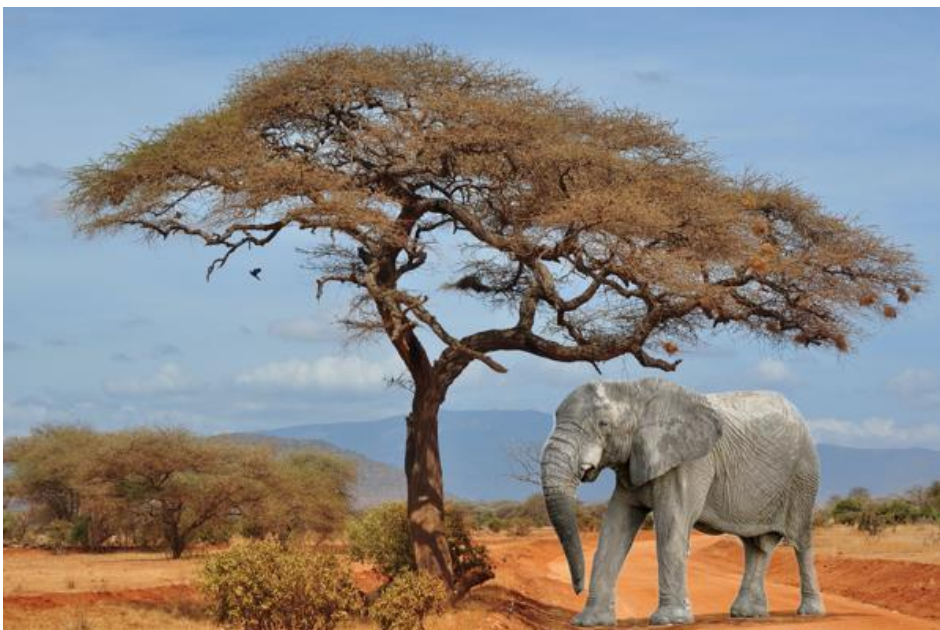
Now that we are writing functions, make sure your work today (and all future assignments) follows our class [Python style guidelines](#) and you include function comments. **Be careful of your indentation!**

## Assignment

While we envision that a human will be the first creature to visit Mars, you will edit an image to ensure that humankind will be second to Mars....

You have three images in your lab9.zip file.

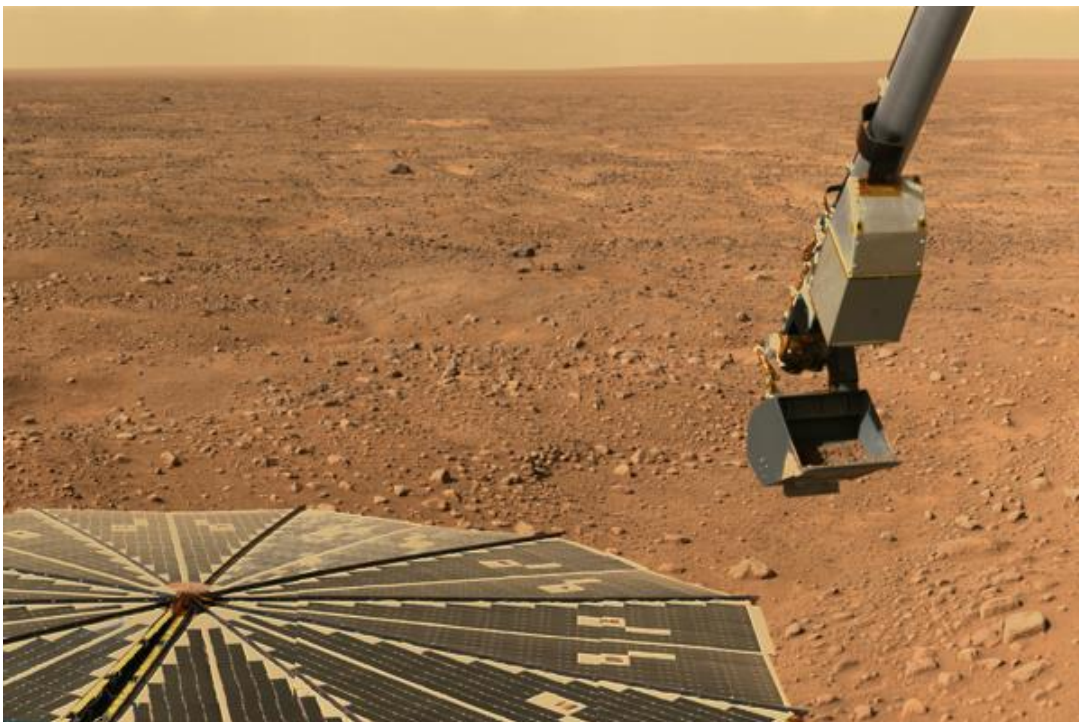
- 1) `tree-elephant.jpg` is a poorly edited image of an elephant near a tree.



2) `tree.jpg` is an image containing the background only behind the elephant.

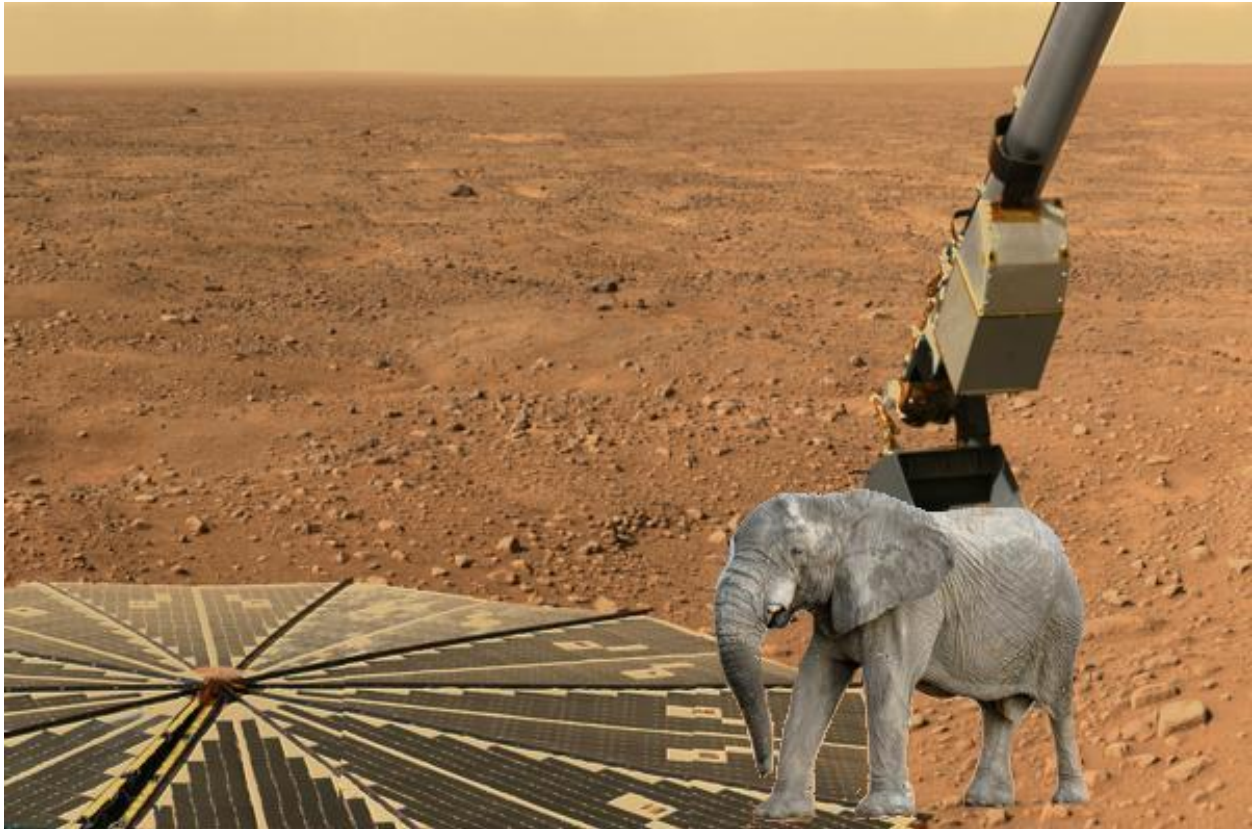


3) `mars.jpg` is a picture of the Martian surface.



## Task 1: The Martian Elephant

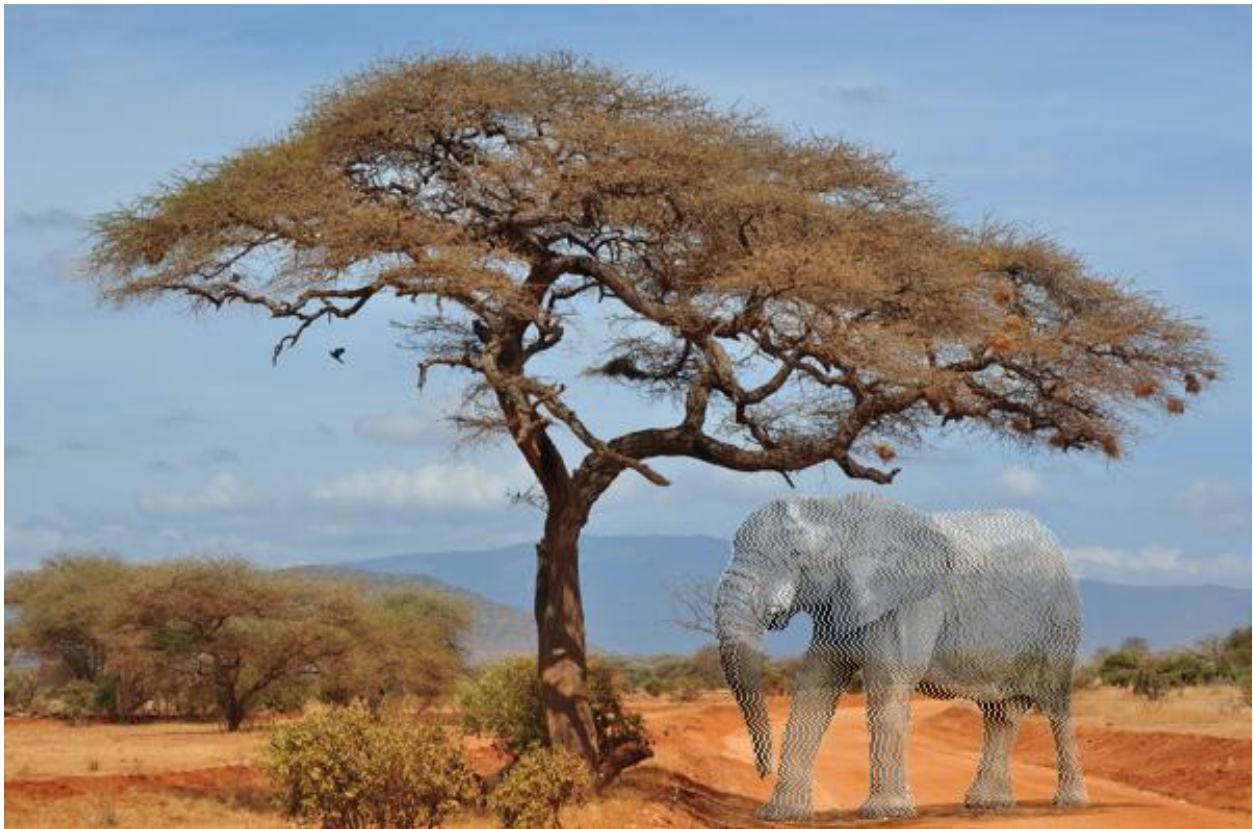
Use the `swap_background` function provided in the starter code to substitute the background in the `tree-elephant.jpg` with the picture of `mars.jpg` to transport the elephant to the surface of Mars! **WHAT HAS SCIENCE DONE!**



Look to the book for clues on how to accomplish this super-human feat!

## Task 2: Beam it up Scotty!

The real question is how in the world did you get the elephant on Mars in the first place? Easy! Teleportation! Use the `teleport_elephant` function provided and reverse the background replacement process to replace a portion of the elephant in the `tree-elephant.jpg` image with background elements found in `tree.jpg`.



You can achieve this effect by keeping a count of the number of pixels that matches the elephant and not the background. You can pass this count variable to the provided teleport function which will tell you if the elephant pixel should be “teleported” (replace the pixel’s color with the color of a background pixel). This will replace only some of the elephant-colored pixels with the tree background image to give the illusion that the elephant is disappearing.

**DO NOT SUBMIT THE IMAGE FOR THE ASSIGNMENT ONLY THE CODE!**