

Pragyan CTF For Interstellar (150 point)

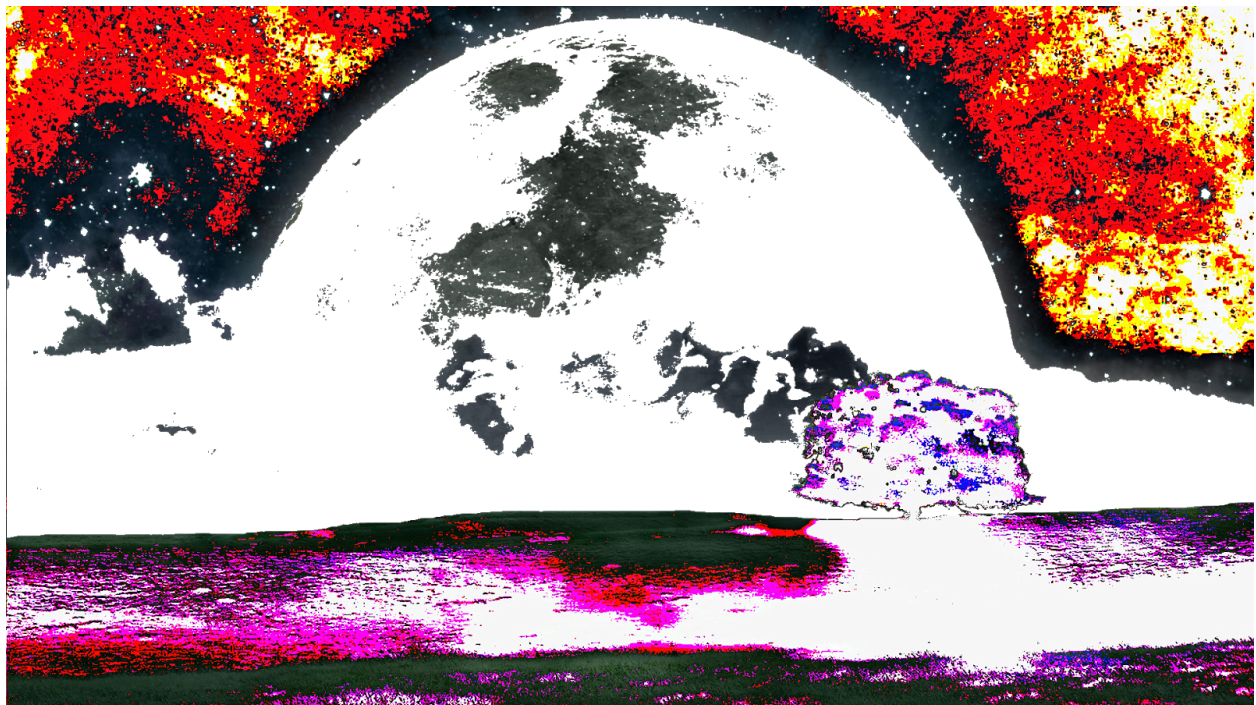
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Challenge:

“Dr. Cooper, on another one of his endless journeys encounters a mysterious planet. However when he tried to land on it, the ship gave way and he was left stranded on the planet. Desperate for help, he relays a message to the mothership containing the details of the people with him. Their HyperPhotonic transmission is 10 times the speed of light, so there is no delay in the message. However, a few photons and magnetic particles interfered with the transmission, causing it to become as shown in the picture. Can you help the scientists on the mothership get back the original image?”

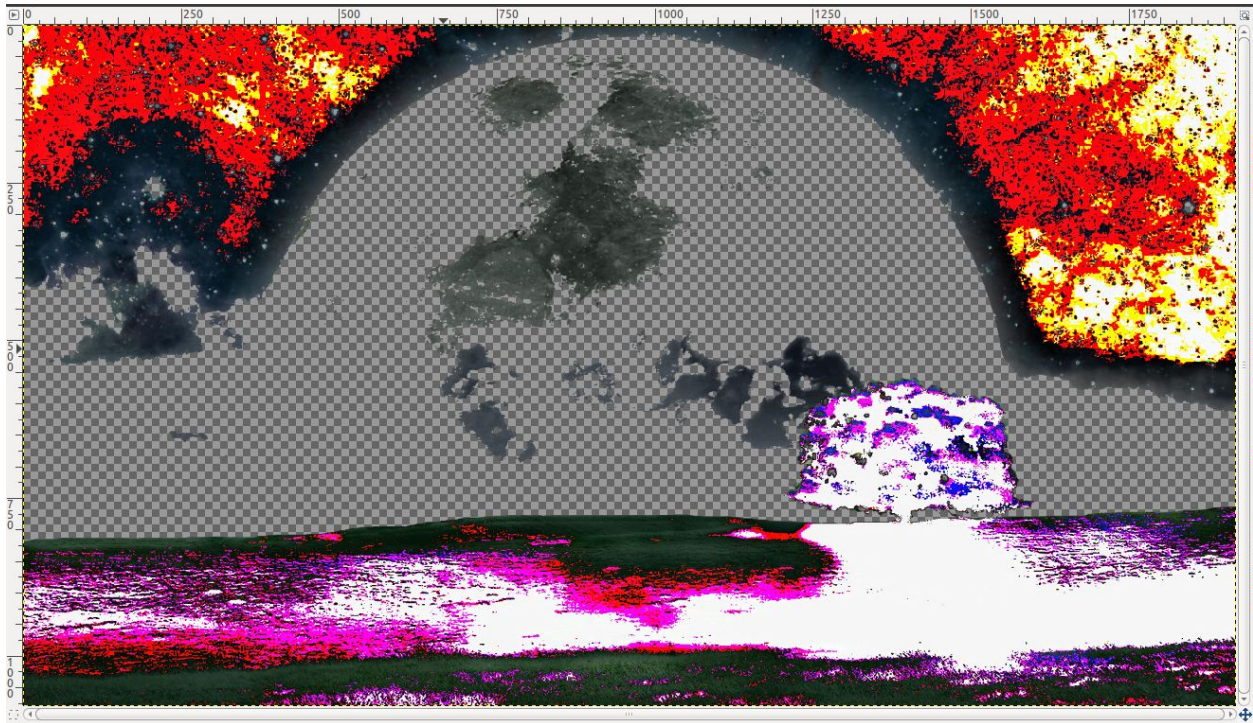
Provided image:



Solve:

I can see that the image appears to be corrupted. To begin to solve this problem, I work through finding all the information I can about the image. Using the tools file, strings, xxd, pnginfo, pngcheck, pngchunks and exiftool, I thoroughly proved that the image is in fact a valid png that is not hiding any obvious extra data. My next idea was to open the image with gimp and adjust the color curves to see if the flag was hiding in the wild colors of our image. This

approach did not reveal the flag.



With the image open in gimp, I see that the original white area of the image is now checkered (checkered is the default background for gimp). This tells me that the white is actually not white at all but is transparent pixels! Now the tools used earlier told me that the image was a png with a color type of: RGB with alpha channel. This alpha channel is a value between 0 and 255 that represents the transparency of that pixel. Using python, a teammate and I created a script to change the alpha value for every pixel to fully opaque. My version of this script, pngedit.py, can be found in the tools folder. The resulting image after running the script is below. Giving the flag: The Flag is{Cooper_Brand}

