Phys 129L: EXTRA CREDIT 2, due Dec 18

Instructions: name the file that should be use for the program ext_cr1_permnumber.py

Find the "Stars". In the image provided "Christmas.jpg", there are bright sources of light that need to be identified. Make a program that counts the bright lights.

1. First, load the image. Check that you have loaded it correctly (e.g. show it on screen).

2. Do a filter for brightness that only selects the "bright" pixels. Setting up the threshold values is up to you. It is convenient to filter on red, green ,blue and see which one is better first. Show the processed image on screen.

3. Clustering: make an algorithm that clusters pixels into stars. That is, make sure that if two nearest neighbors in the picture are hot, that they belong to the same star.

4. Count how many stars are in the field of stars.

5. **Extra, extra credit:** make a movie where the stars are blinking on top of the picture.