Homework #4 (30p)

In your fourth homework you will build a tool for tracking objects in video sequences.

You will start by downloading the images from http://www.cs.gmu.edu/~zduric/cs482/Images/NewColorImages.zip

Your task will be to choose a small region, say 20 × 20 pixels, in the first image and track it in the remaining images. Your region should be something easy to track—e.g. a part of the face of the male. You can track multiple regions at the same time if you wish. Tracking a region from one image to another means that given the region in the first image you find its best match in the second image. To make your tracking efficient you should represent regions by their color histograms. You can choose use either histogram intersection or $\chi^2$ measure to match histograms. Given the best match in the second image you will find the corresponding best match in the third image and so on. You should test your method on multiple regions to see how well it works for different choices of the starting region.

Submitting your homework

You will post your results and report on your web page and submit the url to me. The report will include the following: i. description of all algorithms used in your program, ii. discussion of possible applications for your program.