Crowd Counting using Texture Repetition

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Example Crowds

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Method for Counting

- Consider the crowd as a texture
- Find the texture elements (textons) which make up the crowd
- Determine which of these texton/s represent a person or part of a person
- Match texton against the image to obtain a count

Extracting the Textons

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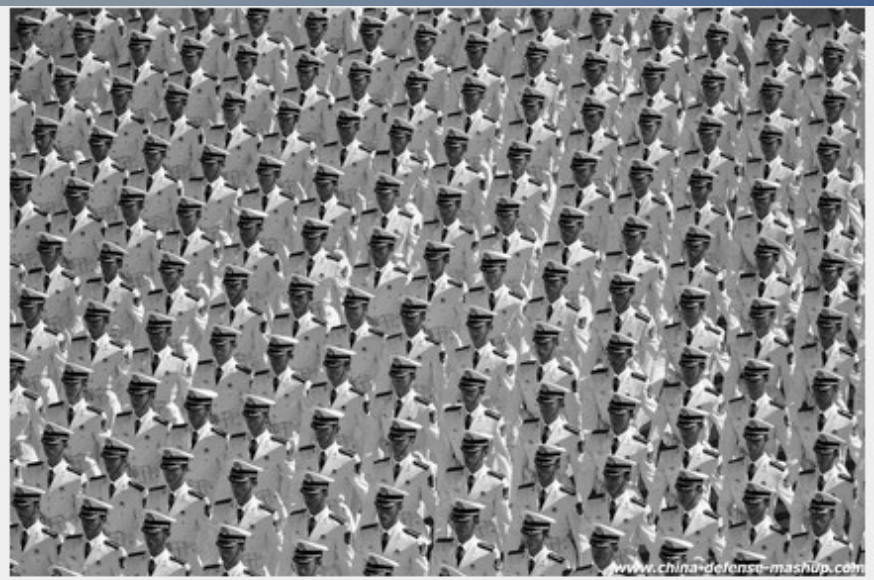
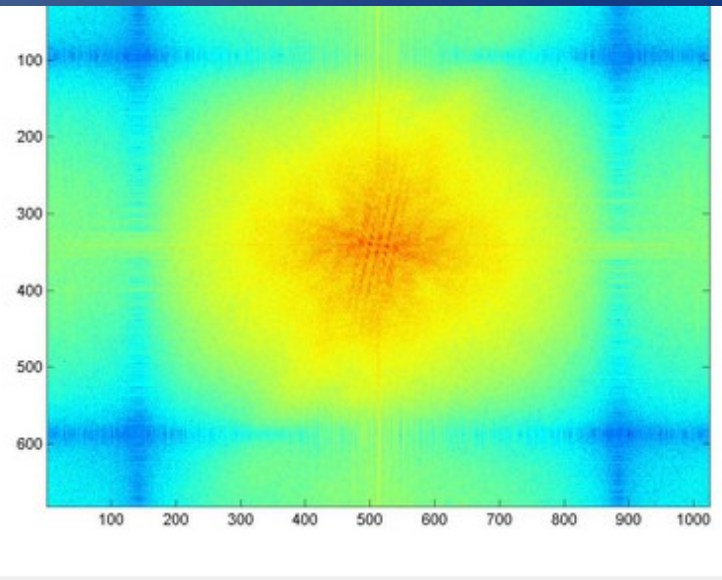
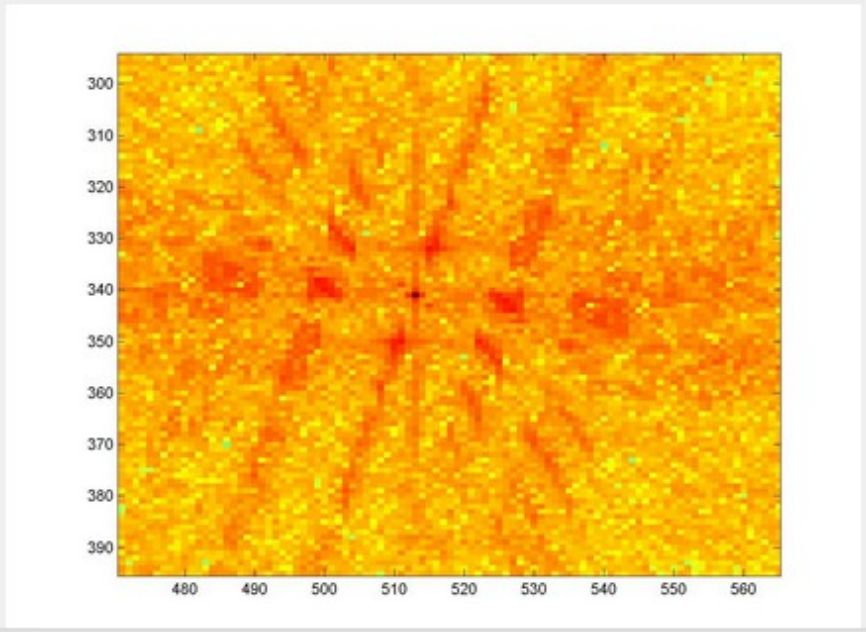
Choosing the Best Texton/s

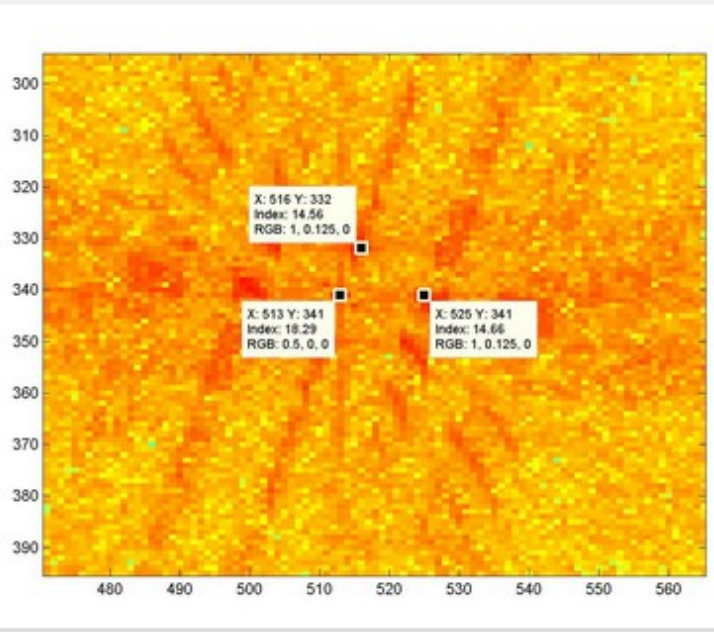
- Need to automate the process of choosing the texton/s which represents a person
- Could try using head or face detection on the clusters, but does not work in many other cases
- Currently looking in to the frequency domain (Fourier Transform) of crowd images for any useful information

Fourier Transform









Fourier Transform Counts

- Using the Fourier transform, we can see frequencies which occur most often
- By taking distance between the peaks and the center in both x and y direction, we can estimate the number of people
- Given less regular crowd pattern, the frequency domain is harder to analyze