Università degli Studi di Brescia, Facoltà di Ingegneria

Multimedia Communication Systems, A.A. 2012/2013

23/10/2012 - Lab. experience n. 4

1. **Image Sampling**
   - Create a synthetic image with a rectangle in the middle, compute its transform and display it. "Subsample" the image by a factor of 4 in the vertical direction by multiplying it by a sampling matrix made of zeros and ones. Compute its transform and display it.
   - Subsample the signal by a factor of 4 in both horizontal and vertical directions. Compute the transform and display it.
   - Repeat the experiment using a quincunx grid.
   - Repeat the experiments with different signals (sinusoids, gaussians, etc...)

2. **Video Sampling**
   - Create a synthetic video with a sinusoid moving in the vertical direction. Compute and "display" the transform, comparing the effect of different speeds in both space and frequency domains.
   - Subsample the signal by a factor of 4 in the time direction (multiply with a sequence of zeros and ones signal), compute and display the transform.
   - Subsample the signal with an interlaced strategy, compute the transform and display it.