Frequency Domain & Transformations

Lines in images will be perpendicular in the Fourier space.

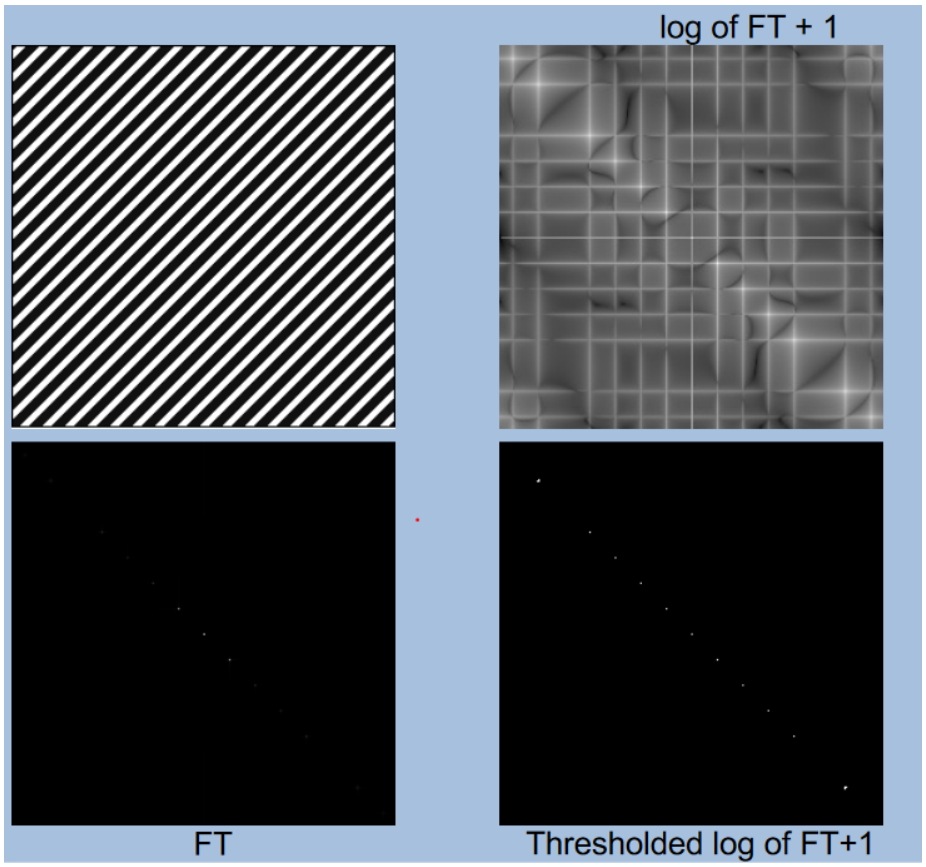

Figure 1: Untitled

Butterworth's low pass filter:

$$H(u,v) = \frac{1}{1 + [r(u,v)/r_0]^{2n}}$$

Butterworth's high pass filter:

$$H(u,v) = \frac{1}{1 + [r_0/r(u,v)]^{2n}}$$

Convolution in the spatial domain is equivalent to multiplication in the frequency domain (and vice versa):

$$h = f * g \implies H = FG \qquad h = fg \implies H = F * G$$