

3D Discrete Fourier Transform Tutorial Exercise

Calculate the 3D DFT of $x(n_1, n_2, n_3)$, of dimensions $N_1 \times N_2 \times N_3$, for which holds:

$$x(n_1, n_2, n_3) = \begin{cases} 1, & 0 \leq n_1 < N_1, n_2 = 0, n_3 = 0 \\ 0, & \text{otherwise} \end{cases}$$