CPSC 4040/6040 Assignment 5

Due December 4, 2020

1 CPSC 4040 Students

Accompanying this assignment description is 49 frames of linear wave animation. The content of the waves has scrambled an embedded message that is clearly sharp and readable on or around frame 95-105. You do not have that frame. But you can use Linear Wave Estimation on all three channels to (1) compute the amplitudes A and B at each wavevector, for each channel; (2) compute frames of estimated waves, and in particular compute them around frames 95-105; (3) find a frame with the clearest depiction of the message; (4) follow the instructions of the message.

An important detail: the dispersion relation is the one we have been using in class:

$$k_t \;=\; \alpha \left(\sqrt{k_x^2 + k_y^2} \right)^{1/2} \tag{1}$$

and the coefficient is $\alpha = 3.33$.

2 CPSC 6040 Students

In addition to accomplishing the above task for the 4040 students, also determine whether or not each of the following values of α also let you see the message in some frame:

- 3.33/2
- 2.33
- 3.2
- 3.3
- 3.4
- 3.33*2
- 3.33*π