Problem - 3 (Spring 2026)

Due date: 12 February, 2026

3a. Generate a random set of n data points in three dimensions such that no two points are closer than a distance of r_{min} from each other. Choose n = 500 and L = 21 and r_{min} = 2.0 for your code.

3b. Generate the nearest-neighbor (NN) map of this set. Assume the nearest-neighbor distance is given by r_c = 2.8 unit.

3c. Repeat the calculation in (3b) by using the periodic images of the box so that the NN map is not affected by the presence of the boundry.