

```

1  function object_matrix = cluster_objects3D(position_matrix, delta)
2
3      num_rows = size(position_matrix,1);
4      object_matrix = zeros(num_rows,1);
5      current = 1;
6      is_available = ones(num_rows,1);
7      object_ID = 0;
8
9      while(sum(is_available) > 0)
10
11         object_ID = object_ID + 1;
12         current = find(is_available == 1);
13         current = current(1);
14
15         object_matrix(current) = object_ID;
16
17         current_vector = position_matrix(current,:);
18         current_vector(4) = current;
19
20         is_available(current) = 0;
21
22         queue(1,:) = current_vector;
23
24         while(size(queue,1) > 0)
25
26             current_vector = queue(1,:);
27             current = current_vector(4);
28
29             for i = 1 : num_rows
30
31                 test_vector = position_matrix(i,:);
32                 test_vector(4) = i;
33                 diff = norm(current_vector(1:3) - test_vector(1:3));
34
35                 if(i != current && diff <= delta && is_available(i))
36
37                     is_available(i) = 0;
38                     queue = [queue; test_vector];
39                     object_matrix(i) = object_ID;
40
41                 endif
42
43             endfor
44
45             queue(1,:) = [];
46
47         endwhile
48
49     endwhile
50
51 endfunction

```