

```

                                local_test
function [up_neighbor down_neighbor left_neighbor right_neighbor] = local_test(N, i,
j, Is_taken, S_mat, anchor, delta);

up_neighbor = 0;
down_neighbor = 0;
right_neighbor = 0;
left_neighbor = 0;

if(i - 1 >= 1) %UP

    if(Is_taken(i - 1,j) == 0 && (anchor - S_mat(i - 1,j))^2 < delta)

        up_neighbor = 1;

    endif

endif

if(i + 1 <= N) %DOWN

    if(Is_taken(i + 1,j) == 0 && (anchor - S_mat(i + 1,j))^2 < delta)

        down_neighbor = 1;

    endif

endif

if(j - 1 >= 1) %LEFT

    if(Is_taken(i,j - 1) == 0 && (anchor - S_mat(i,j - 1))^2 < delta)

        left_neighbor = 1;

    endif

endif

if(j + 1 <= N) %RIGHT

    if(Is_taken(i,j + 1) == 0 && (anchor - S_mat(i,j + 1))^2 < delta)

        right_neighbor = 1;

    endif

endif

```

local_test

endif

endfunction