# Contents



# 1 getDiameters

## 1.1 input: im, skel

## 1.2 output:

## 1.3 algorithm

1. create edm mask (euclidean distance map)

2. search for the main stem a. find the "deepest" point

   - The deepest point is the point with the largest edm value. I call it deep because it is further away from the edges.
   - This is done via a max search of the edm

   b. from the deepest point (wmax, hmax) follow to the stem root c. at each height, find the left and right extents by walking until left until reaching a zero, similarly for the right extent d. compute the mid of left and right boundary points, e. use this x coordinate as the beginning point for the next search at the next height f. continue this upward path until the diff of the left and right extents become smaller than from the earlier height g. the logic is that the stem should become wider and wider at its source of origin

3. find the max lateral radius a. at each point, consider its lateral distance to the x-value of the stem if it is not white b. the max lateral radius will be the max of such measurements

4. find the max radius a. this is similar to 3, but calculate the point to point distance between the point considered and the x, y coordinates of the stem b. the max radius will be the max of such measurements