

```

1 function [sca, r, center] = scale(display, filename, pathname)
2     corScale = 1.6;
3
4     if(nargin < 2)
5         [filename, pathname] = uigetfile(sprintf('%s', ...
6                                             '*.bmp'));
7     end
8
9     rgb = imread(sprintf('%s%s', ...
10                      pathname, ...
11                      filename));
12
13     [centers1, radii1] = imfindcircles(rgb, ...
14                                       [70 110], ...
15                                       'ObjectPolarity', ...
16                                       'bright', ...
17                                       'Sensitivity', ...
18                                       0.96, ...
19                                       'Method', ...
20                                       'twostage', ...
21                                       'EdgeThreshold', ...
22                                       0.08);
23
24     [centers2, radii2] = imfindcircles(rgb, ...
25                                       [75 100], ...
26                                       'ObjectPolarity', ...
27                                       'dark', ...
28                                       'Sensitivity', ...
29                                       0.97, ...
30                                       'Method', ...
31                                       'twostage', ...
32                                       'EdgeThreshold', ...
33                                       0.08);
34
35     if(nargin == 1)
36
37         figure();
38         imshow(rgb);
39
40         viscircles(centers1, radii1, 'Color', 'r');
41         viscircles(centers2, radii2, 'Color', 'b');
42
43     end
44
45     r = radii1(1);
46     center = centers1(1, :);
47
48     sca = corScale/(2*r);
49 end

```