

*Example 4.* In this example adapted from Spielman, we generate 20 randomly chosen points in the unit square, compute their Delaunay triangulation, then the adjacency matrix of the corresponding graph, and finally draw the graph using the second and third eigenvalues of the Laplacian.

```
A = zeros(20,20);
xy = rand(20, 2);
trigs = delaunay(xy(:,1), xy(:,2));
elemtrig = ones(3) - eye(3);
for i = 1:length(trigs),
    A(trigs(i,:),trigs(i,:)) = elemtrig;
end
A = double(A > 0);
gplot(A,xy)
D = diag(sum(A));
L = D - A;
[v, e] = eigs(L, 3, 'sm');
figure(2)
gplot(A, v(:, [2 1]))
hold on
gplot(A, v(:, [2 1]), 'o')
```

The Delaunay triangulation of the set of 20 points and the drawing of the corresponding graph are shown in Figure 21.4. The graph drawing on the right looks nicer than the graph on the left but is no longer planar.

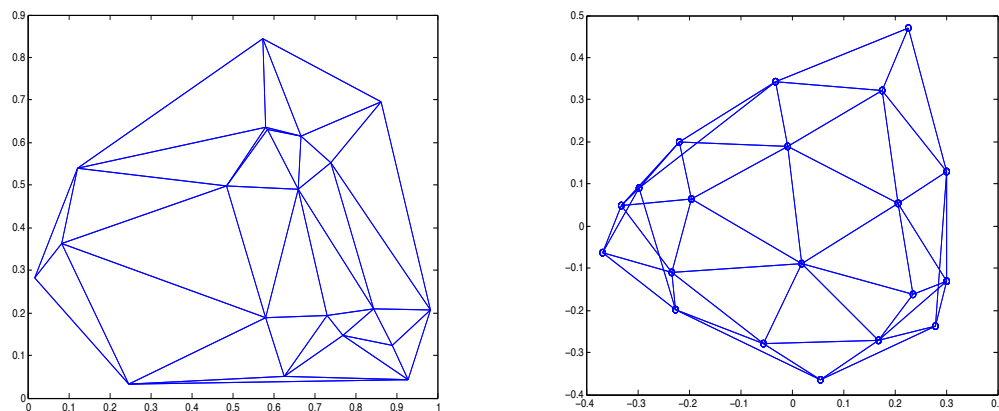


Figure 21.4: Delaunay triangulation (left) and drawing of the graph from Example 4 (right).

*Example 5.* Our last example, also borrowed from Spielman [163], corresponds to the skeleton of the “Buckyball,” a geodesic dome invented by the architect Richard Buckminster