Matlab Editor

```
clear all; clc;                                                 % clear workspace

t0 = ac.Tic('2D Simulation');                                   % start timing
opt = ac.In('N', 500, 'Angle', 45, 'Kappa', 0, 'MinLength', 0.05,...   % define parameters
            'MaxLength', 0.1);
fnm = ac.FNM(opt);                                              % simulate DFN
fnm.Labels = ac.LinesToClusters2D(fnm.Lines);                   % cluster analysis
fnm.CF = ac.CF2D(fnm, 30, 30);                                  % compute CF
fnm.Density = ac.Density2D(fnm, 30, 30);                        % compute density
clf                                                             % clear figure
subplot(211);                                                   % create subplot
ac.DrawMatched(ac.In('Lines', fnm.Lines, ...                    % draw CF map
                     'LineColor', 'k', ...
                     'LineWidth', 0.25, ...
                     'Image', fnm.CF.CF, ...
                     'Super', 3, ...                            % super sampling rate
                     'Smooth', 9, ...
                     'Block', nan, ...
                     'Contour', ac.In('N', 7, 'LineColor', 'k')));
subplot(212);
ac.DrawMatched(ac.In('Lines', fnm.Lines, ...                    % draw density map
                     'LineColor', [0.9, 0.9, 0.9], ...
                     'LineWidth', 0.25, ...
                     'Image', fnm.Density, ...
                     'Super', 3, ...
                     'Smooth', 1, ...
                     'Block', nan, ...
                     'Contour', ac.In('N', 15, 'LineColor', 'none')));
ac.Toc(t0);                                                     % show elapsed time
```

Matlab Command Window

```
>> fnm
fnm =
       Lines: [500x4 double]
    Original: [500x4 double]
      Labels: [500x1 double]
          CF: [1x1 struct]
     Density: [30x30 double]

>> fnm.CF
ans =
          CF: [30x30 double]
    nClusters: [30x30 double]
       nLines: [30x30 double]
         Grid: [2x30 double]
```

Matlab Figures