### Performance of SCALPEL

<font size=2> Apply SCALPEL to recover the neuronal signals from the field of view (except "minClusterSize", default values were used for all of the tuning parameters), as the right figure shows. Compared to the ground truth (left figure, based on a separate anatomical nuclear marker and/or hand annotations), there are 403 elements retained after refining the dictionary via clustering and none of them is zeroed out by grouped lasso regularizer. It is obvious that many small elements consisting of noise pixels are mis-construed even small clusters have already been filtered out. </font>

{% asset\_img trueA\_minCluster5.pdf %}

<font size=2> In particular, when focusing on the left bottom of FOV, SCALPEL is less effective. At the left corner, the data structure tends to be more complicated (left: raw fame; median: soma locations; right: estimates), including dendritic compartments and stronger neuropil contamination. </font>

{% asset\_img sub\_comp.jpg %}

<font size=2> By filtering out some small clusters (cluster size < 5), 135 elements are removed. Obviously, some true soma are missed as well. SCALPEL may be less effective to deal with neuropil corruption and not suitable to extract dendrites. The default values of some tuning parameters seem not reliable. Simulation experiments need to be conducted for verification. </font>

{% asset\_img subtruth\_temp\_minCluster5.pdf %}