|  |  |  |  |
| --- | --- | --- | --- |
| **Structure name** | **Field name** | **Type** | **Notes** |
| acq (*acq.mat*) |  |  | Parameters for timelapse live-cell imaging acquisition |
|  | M | integer | Number of rows of tiled images |
|  | N | integer | Number of columns of tiled images |
|  | X | integer | Number of row pixels for each image |
|  | Y | integer | Number of column pixels for each image |
|  | C | structure array, where number of elements = number of channels | Information on image channels (widefield + fluorescent) |
|  | T | integer | Number of timepoints in movie |
|  | Z | integer | removed |
|  | indir | char array, number of elements = number of separate image names | Names of directories containing image files, listed in succession |
|  | tr | 1xT double | Time elapsed since first frame of movie, for all movie frames |
|  | tr\_min | double | (can remove?) |
|  | segchannel | double | Number of channel used for cell segmentation |
|  | datachannel | double | Number for channel containing fluorescent image data |
|  |  |  |  |
| acq.C | cR | 8-bit integer | red RGB value for image channel |
|  | cG | 8-bit integer | green RGB value for image channel |
|  | cB | 8-bit integer | blue RGB value for image channel |
|  | doz | binary | 1 if image is a z-stack, 0 otherwise |
|  | zslices | integer | Number of z-slices |
|  | tlist | 1xT binary array | 1 if image is present in that channel, 0 otherwise |
|  | correct | YxX double | image correction matrix |
|  | name | string | Fluorescent channel name |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| timepoints  (segtrack.mat) |  | structure array, where number of elements = number of time points | Structure array containing structure array of segmented objects *obj* (see below) |
|  | obj | structure array, where number of elements = number of objects for a given time point | Structure array containing information for segmented objects |
|  |  |  |  |
| timepoints.obj | m | integer | image tile row number |
|  | n | integer | image tile column number |
|  | trno | integer | track number |
|  | x | double | x-position (global coordinates for stitched image) |
|  | y | double | y-position (global coordinates for stitched image) |
|  | b | N x 2 integer, where N gives the number of points | The list of (x,y) pixel locations for boundary of segmented object |
|  | data | structure array | object data (see below) |
|  | gate | integer | gate to which object belongs |
|  |  |  |  |
|  |  |  |  |
| Fcs |  | class for retrieval and cytometric analysis of single-cell data | USAGE:  Fcs(timepoints, thr)  Fcs(timepoints, thr, tracks)  Fcs(timepoints, thr, tracks, fieldinfo, gates)  Fcs(timepoints, thr, [], fieldinfo, gates)  timepoints (see above)  thr (vector of timepoints in hours)  tracks (track information) |
| lin |  |  | Structure containing individual approved lineages, traced from the timepoints structure + track information |
|  | Trs |  | Individual cells within a lineage, from birth to death |
|  | trs.tr  trs.gen  trs.delta  trs.ts  trs.data  trs.edata trs.children |  | Track number in timepoints structure  generation (ancestor = 1, increment 1/generation)  offset for displaying on lineage tree  1 x T vector of times in frame number  1xT structure array, containing imaging data  event data, (death?)  indices of children |
| thr |  |  | 1xT vector of elapsed time in hours |