Appendix 1

This appendix includes the details of FLocK features, where the pre-defined cluster number is set to 2. Features belonging to Sets A and B are included below. For more details, we direct the reader to the code we released on Github https://github.com/hacylu/FLocK

A. Features that do not consider cluster types (i.e. Set A)

Feature set A includes four groups, A1 to A4, which are described below:

Group A1 - Intersection between different FLocKs: intersection properties/measurement of FLocKs or overlapped area portion between proximal FLocKs.

Feature name	Description
FLocK - portion of intersected FLocK	(total number of intersected FLocKs) / (total number of FLocKs)
FLocK-abs. number of intersected FLocK	absolute number of intersected FLocKs
FLocK-portion of highly intersected FLocK:T=0.1 *FLocK-portion of highly intersected FLocK:T=0.2* *FLocK-portion of highly intersected FLocK:T=0.3* *FLocK-portion of highly intersected FLocK:T=0.4* *FLocK-portion of highly intersected FLocK:T=0.5* *FLocK-portion of highly intersected FLocK:T=0.6* *FLocK-portion of highly intersected FLocK:T=0.7* *FLocK-portion of highly intersected FLocK:T=0.8* *FLocK-portion of highly intersected FLocK:T=0.9*	Denote two FLocKs as *C* and *D*, corresponding areas are denoted as *area*(*C*) and *area*(*D*), respectively. If two FLocKs intersect, the corresponding area is denoted as *area(C ∩ D). The ratio of the intersected region is calculated as P= area(C ∩ D)/area(C) or P= area(C ∩ D)/area(D).* We calculate the portion of intersected FLocKs whose *P>T,* where *T* is a set of pre-defined thresholds, ranging from 0.1 to 0.9 in increments of 0.1. For example, in an image, we have 30 FLocKs and 15 of them have P > 0.2. The feature '*FLocK-portion of highly intersected FLocK:T=0.2*' value is 15/30=0.5.
FLocK-number of highly intersected FLocK:T=0.1 *FLocK-number of highly intersected FLocK:T=0.2* *FLocK-number of highly intersected FLocK:T=0.3* *FLocK-number of highly intersected FLocK:T=0.4* *FLocK-number of highly intersected FLocK:T=0.5* *FLocK-number of highly intersected FLocK:T=0.6* *FLocK-number of highly intersected FLocK:T=0.7* *FLocK-number of highly intersected FLocK:T=0.8* *FLocK-number of highly intersected FLocK:T=0.9*	Denote two FLocKs as *C* and *D*, corresponding areas are denoted as *area*(*C*) and *area*(*D*), respectively. If two FLocKs intersect, the corresponding area is denoted as *area(C ∩ D). The ratio of the intersected region is calculated as P= area(C ∩ D)/area(C) or P= area(C ∩ D)/area(D).* We calculate the portion of intersected FLocKs whose *P>T,* where *T* is a set of pre-defined thresholds, ranging from 0.1 to 0.9 in increments of 0.1. For example, in an image, we have 30 FLocKs and 15 of them have P > 0.2. '*FLocK-number of highly intersected FLocK:T=0.2*' value is 15.
FLocK-mean(intersection area portion:small) *FLocK-median(intersection area portion:small)* *FLocK-std(intersection area portion:small)* *FLocK-range(intersection area portion:small)* *FLocK-min(intersection area portion:small)* *FLocK-max(intersection area portion:small)*	This set of features measures statistics of intersecting FLocKs. Denote two FLocKs as *C* and *D*, corresponding areas are denoted as *area*(*C*) and *area*(*D*), respectively. The intersection is designated as C ∩ D. Feature (*intersection area portion:large)* is calculated as

FLocK-kurtosis(intersection area portion:small) ***FLocK-skewness(intersection area portion:small)*** ***FLocK-mean(intersection area portion:large)*** ***FLocK-median(intersection area portion:large)*** ***FLocK-std(intersection area portion:large)*** ***FLocK-range(intersection area portion:large)*** ***FLocK-min(intersection area portion:large)*** ***FLocK-max(intersection area portion:large)*** ***FLocK-kurtosis(intersection area portion:large)*** ***FLocK-skewness(intersection area portion:large)*** ***FLocK-mean(intersection area portion:mean)*** ***FLocK-median(intersection area portion:mean)*** ***FLocK-std(intersection area portion:mean)*** ***FLocK-range(intersection area portion:mean)*** ***FLocK-min(intersection area portion:mean)*** ***FLocK-max(intersection area portion:mean)*** ***FLocK-kurtosis(intersection area portion:mean)*** ***FLocK-skewness(intersection area portion:mean)***	**area(C&D)/max(area(C), area(D)); (*intersection area portion:small)* is calculated as area(C&D)/min(area(C), area(D)); (*intersection area portion:mean)* is calculated as area(C&D)/mean(area(C), area(D)). Since we have multiple FLocKs in an image, we use 8 types of statistics (mean, median, standard deviation, range, minimum value, maximum value, kurtosis, and skewness), to characterize the whole image (this applies to the following features as well).**
FLocK-mean(intersection area abs val) ***FLocK-median(intersection area abs val)*** ***FLocK-std(intersection area abs val)*** ***FLocK-range(intersection area abs val)*** ***FLocK-min(intersection area abs val)*** ***FLocK-max(intersection area abs val)*** ***FLocK-kurtosis(intersection area abs val)*** ***FLocK-skewness(intersection area abs val)***	**Denote two FLocKs as *C* and *D*, areas of these two FLocKs are calculated as *area*(*C*) and *area*(*D*), respectively. The intersected region of C and D is calculated as *C∩D.* Feature *intersection area abs val* is calculated as area(C&D). Since we have multiple FLocKs in an image, we use 8 common statistics (mean, median, standard deviation, range, minimum value, maximum value, kurtosis, and skewness), to quantify the whole image (this applies to the following features as well).**

Group A2 – Size of FLocKs: statistics of the size of FLocK/number of nuclei within a FLocK (include the single cell as a FLocK) across the whole image.

Feature name	Description
FLocK-mean(size of all FLocK) ***FLocK-median(size of all FLocK)*** ***FLocK-std(size of all FLocK)*** ***FLocK-range(size of all FLocK)*** ***FLocK-min(size of all FLocK)*** ***FLocK-max(size of all FLocK)*** ***FLocK-kurtosis(size of all FLocK)*** ***FLocK-skewness(size of all FLocK)*** ***FLocK-mean(size of non-1-2cell FLocK)*** ***FLocK-median(size of non-1-2cell FLocK)*** ***FLocK-std(size of non-1-2cell FLocK)*** ***FLocK-range(size of non-1-2cell FLocK)*** ***FLocK-min(size of non-1-2cell FLocK)*** ***FLocK-max(size of non-1-2cell FLocK)***	**These features capture the size of FLocKs. S*ize of all FLocK* is self explanatory. *Size of non-1-2cell FLocK*, represents the size of all FLocKs containing more than 2 cells.**

FLocK-kurtosis(size of non-1-2cell FLocK) ***FLocK-skewness(size of non-1-2cell FLocK)***	
FLocK-non-1-2cell FLocK ratio	**(number of FLocKs containing more than two cells) / (number of FLocKs in the image)**
FLocK-mean(nuclei no. in FLocK) ***FLocK-median(nuclei no. in FLocK)*** ***FLocK-std(nuclei no. in FLocK)*** ***FLocK-range(nuclei no. in FLocK)*** ***FLocK-min(nuclei no. in FLocK)*** ***FLocK-max(nuclei no. in FLocK)*** ***FLocK-kurtosis(nuclei no. in FLocK)*** ***FLocK-skewness(nuclei no. in FLocK)***	**Number of nuclei in each FLocK.**

Group A3 – Disorder of nuclear morphology: variation in distance/size/color/shape of nucleus compared to the centroid of a FLocK (FLocK has >=2 cells).

Feature name	Description
'FLocK-mean(var of nuclear feat1to the centroid)' ***'FLocK-median(var of nuclear feat1to the centroid)'*** ***'FLocK-std(var of nuclear feat1to the centroid)'*** ***'FLocK-range(var of nuclear feat1to the centroid)'*** ***'FLocK-min(var of nuclear feat1to the centroid)'*** ***'FLocK-max(var of nuclear feat1to the centroid)'*** ***'FLocK-kurtosis(var of nuclear feat1to the centroid)'*** ***'FLocK-skewness(var of nuclear feat1to the centroid)'*** ***'FLocK-mean(var of nuclear feat2to the centroid)'*** ***'FLocK-median(var of nuclear feat2to the centroid)'*** ***'FLocK-std(var of nuclear feat2to the centroid)'*** ***'FLocK-range(var of nuclear feat2to the centroid)'*** ***'FLocK-min(var of nuclear feat2to the centroid)'*** ***'FLocK-max(var of nuclear feat2to the centroid)'*** ***'FLocK-kurtosis(var of nuclear feat2to the centroid)'*** ***'FLocK-skewness(var of nuclear feat2to the centroid)'***	**This set of features measures the variation in nuclear features all nodes within the flock with respect to the node corresponding to the centroid of the FLocK. If the FLocKs were constructed in a 2-nuclear feature space, *feat1* and *feat2* would represent the first and second nuclear features, respectively. Denote the centroid of FLocK in feature space 1 or 2 as F, each nuclear feature as N_i, the variation is calculated as $\sqrt{\frac{\sum_i^Q (N_i - F)^2}{Q}}$, where *Q* is the number of nuclei in the FLocK.**
'FLocK-mean(var of cell to FLocK centroid)' ***'FLocK-median(var of cell to FLocK centroid)'*** ***'FLocK-std(var of cell to FLocK centroid)'*** ***'FLocK-range(var of cell to FLocK centroid)'*** ***'FLocK-min(var of cell to FLocK centroid)'*** ***'FLocK-max(var of cell to FLocK centroid)'*** ***'FLocK-kurtosis(var of cell to FLocK centroid)'*** ***'FLocK-skewness(var of cell to FLocK centroid)'***	**This set of features measures the variation between the nuclear physical distance and the centroid of the FLocK. Denote the centroid of FLocK as *M*, each nuclear centroid as N_i, the variation is calculated as $\sqrt{\frac{\sum_i^Q (N_i - M)^2}{Q}}$, where *Q* is the number of nuclei in the FLocK.**

Group A4 – Spatial arrangement of FLocKs: use the centroids of FLocK as nodes, we build global graph (Voronoi diagram, Delaunay Triangulation, and Minimum Spanning Trees) to connect centroids of different FLocKs. We have another set of features that use the centroids of intersected regions of FLocKs as nodes which we have not listed here.

Feature name	Description
FLocK-FLocK centroid-Area Standard Deviation ***FLocK-FLocK centroid-Area Average*** ***FLocK-FLocK centroid-Area Minimum / Maximum*** ***FLocK-FLocK centroid-Area Disorder*** ***FLocK-FLocK centroid-Perimeter Standard Deviation*** ***FLocK-FLocK centroid-Perimeter Average*** ***FLocK-FLocK centroid-Perimeter Minimum / Maximum*** ***FLocK-FLocK centroid-Perimeter Disorder*** ***FLocK-FLocK centroid-Chord Standard Deviation*** ***FLocK-FLocK centroid-Chord Average*** ***FLocK-FLocK centroid-Chord Minimum / Maximum*** ***FLocK-FLocK centroid-Chord Disorder***	**Use the centroids of FLocKs as nodes to construct Voronoi Diagram. Voronoi Diagram based features related to the area, perimeter, and chord of Voronoi cells are calculated.**
FLocK-FLocK centroid-Side Length Minimum / Maximum ***FLocK-FLocK centroid-Side Length Standard Deviation*** ***FLocK-FLocK centroid-Side Length Average*** ***FLocK-FLocK centroid-Side Length Disorder*** ***FLocK-FLocK centroid-Triangle Area Minimum / Maximum*** ***FLocK-FLocK centroid-Triangle Area Standard Deviation*** ***FLocK-FLocK centroid-Triangle Area Average*** ***FLocK-FLocK centroid-Triangle Area Disorder***	**Use the centroids of FLocKs as nodes to construct Delaunay Triangulation. Delaunay Triangulation based-features related to the triangle edge length, and triangle area are calculated.**
FLocK-FLocK centroid-MST Edge Length Average ***FLocK-FLocK centroid-MST Edge Length Standard Deviation*** ***FLocK-FLocK centroid-MST Edge Length Minimum / Maximum*** ***FLocK-FLocK centroid-MST Edge Length Disorder***	**Use the centroids of FLocKs as nodes to construct Minimum Spanning Tree (MST). MST based-features related to the edge length are calculated.**
FLocK-FLocK centroid-Average distance to 3 Nearest Neighbors ***FLocK-FLocK centroid-Average distance to 5 Nearest Neighbors*** ***FLocK-FLocK centroid-Average distance to 7 Nearest Neighbors*** ***FLocK-FLocK centroid-Standard Deviation distance to 3 Nearest Neighbors***	**Calculate Euclidean distances between centroids of FLocKs and centroids of other FLocKs. Euclidean distance based-features, including the statistics of K-nearest neighbors, and nearest neighbors in a certain pixel radius are then calculated.**

FLocK-FLocK centroid-Standard Deviation distance to 5 Nearest Neighbors ***FLocK-FLocK centroid-Standard Deviation distance to 7 Nearest Neighbors*** ***FLocK-FLocK centroid-Disorder of distance to 3 Nearest Neighbors*** ***FLocK-FLocK centroid-Disorder of distance to 5 Nearest Neighbors*** ***FLocK-FLocK centroid-Disorder of distance to 7 Nearest Neighbors*** ***FLocK-FLocK centroid-Avg. Nearest Neighbors in a 10 Pixel Radius*** ***FLocK-FLocK centroid-Avg. Nearest Neighbors in a 20 Pixel Radius*** ***FLocK-FLocK centroid-Avg. Nearest Neighbors in a 30 Pixel Radius*** ***FLocK-FLocK centroid-Avg. Nearest Neighbors in a 40 Pixel Radius*** ***FLocK-FLocK centroid-Avg. Nearest Neighbors in a 50 Pixel Radius*** ***FLocK-FLocK centroid-Standard Deviation Nearest Neighbors in a 10 Pixel Radius*** ***FLocK-FLocK centroid-Standard Deviation Nearest Neighbors in a 20 Pixel Radius*** ***FLocK-FLocK centroid-Standard Deviation Nearest Neighbors in a 30 Pixel Radius*** ***FLocK-FLocK centroid-Standard Deviation Nearest Neighbors in a 40 Pixel Radius*** ***FLocK-FLocK centroid-Standard Deviation Nearest Neighbors in a 50 Pixel Radius*** ***FLocK-FLocK centroid-Disorder of Nearest Neighbors in a 10 Pixel Radius*** ***FLocK-FLocK centroid-Disorder of Nearest Neighbors in a 20 Pixel Radius*** ***FLocK-FLocK centroid-Disorder of Nearest Neighbors in a 30 Pixel Radius*** ***FLocK-FLocK centroid-Disorder of Nearest Neighbors in a 40 Pixel Radius*** ***FLocK-FLocK centroid-Disorder of Nearest Neighbors in a 50 Pixel Radius***	
FLocK-FLocK centroid-Area of polygons ***FLocK-FLocK centroid-Number of nuclei*** ***FLocK-FLocK centroid-Density of Nuclei*** ***FLocK-mean(density of non-1-2cell FLocKs)*** ***FLocK-median(density of non-1-2cell FLocKs)*** ***FLocK-std(density of non-1-2cell FLocKs)*** ***FLocK-range(density of non-1-2cell FLocKs)*** ***FLocK-min(density of non-1-2cell FLocKs)*** ***FLocK-max(density of non-1-2cell FLocKs)*** ***FLocK-kurtosis(density of non-1-2cell FLocKs)*** ***FLocK-skewness(density of non-1-2cell FLocKs)***	**Calculate the density of a FLocK. The density is calculated as: (the number of nuclei in FLocK) / (area of the FLocK). Statistics of all FLocKs in an image are calculated as well.**

FLocK-mean(density of all FLocKs) ***FLocK-median(density of all FLocKs)*** ***FLocK-std(density of all FLocKs)*** ***FLocK-range(density of all FLocKs)*** ***FLocK-min(density of all FLocKs)*** ***FLocK-max(density of all FLocKs)*** ***FLocK-kurtosis(density of all FLocKs)*** ***FLocK-skewness(density of all FLocKs)***	

B、Features that consider cluster types (for example, cluster type number=2, we denote the first type as type 1, the second type as type 2)

Group B1 - Intersection between different types of FLocKs: intersection properties/measurement of FLocKs corresponding to different cluster types.

Feature name	Description
FLocK-portion of intra-type FLocK intersction-Type1 **FLocK-portion of inter-type FLocK intersction-Type1** **FLocK-portion of intra-type FLocK intersction-Type2** **FLocK-portion of inter-type FLocK intersction-Type2** **FLocK-number of intra-type FLocK intersction-Type1** **FLocK-number of inter-type FLocK intersction-Type1** **FLocK-number of intra-type FLocK intersction-Type2** **FLocK-number of inter-type FLocK intersction-Type2**	**These features measure the interaction between different types of FLocKs. 'Intra-type' indicates the FLocKs that belonged to the same type (i.e. either Type1 or Type2), whereas 'Inter-type' refers to the FLocKs between different types (e.g. between Type 1 and Type 2). Denote the total number of FLocKs in an image as N, the number of FLocKs belonging to type 1 as N_1, the number of FLocKs belonging to type 2 as N_2, the number of Type 1 FLocKs that intersect with Type 1 Flocks as N_1^1, the number of Type 1 FLocKs that intersect with Type 2 Flocks as N_1^2. Feature *portion of intra-type FLocK intersction-Type1*, is calculated as N_1^1/N_1.** **Feature *portion of inter-type FLocK intersction-Type1*, is calculated as N_1^2/N_1.**

Group B2 - Enrichment of the K-nearest FLocKs: quantify the diversity of FLocKs, with pre-defined phenotype number, in terms of nearest FLocKs.

FLocK-mean(portion of other FLocK types in5nearest neighbors) ***FLocK-median(portion of other FLocK types in5nearest neighbors)*** ***FLocK-std(portion of other FLocK types in5nearest neighbors)*** ***FLocK-range(portion of other FLocK types in5nearest neighbors)*** ***FLocK-min(portion of other FLocK types in5nearest neighbors)*** ***FLocK-max(portion of other FLocK types in5nearest neighbors)*** ***FLocK-kurtosis(portion of other FLocK types in5nearest neighbors)***	**The portion of other types of FLocKs within 5, 10, 15 nearest neighbored FLocKs. For example, within 10 nearest neighbored FLocKs, 3 of them are from the same type, and the other 7 are from the other type. The portion of the other types of FLocKs within 10 nearest neighbored FLocKs is 0.7.**

FLocK-skewness(portion of other FLocK types in5nearest neighbors) *FLocK-mean(portion of other FLocK types in10nearest neighbors)* *FLocK-median(portion of other FLocK types in10nearest neighbors)* *FLocK-std(portion of other FLocK types in10nearest neighbors)* *FLocK-range(portion of other FLocK types in10nearest neighbors)* *FLocK-min(portion of other FLocK types in10nearest neighbors)* *FLocK-max(portion of other FLocK types in10nearest neighbors)* *FLocK-kurtosis(portion of other FLocK types in10nearest neighbors)* *FLocK-skewness(portion of other FLocK types in10nearest neighbors)* *FLocK-mean(portion of other FLocK types in15nearest neighbors)* *FLocK-median(portion of other FLocK types in15nearest neighbors)* *FLocK-std(portion of other FLocK types in15nearest neighbors)* *FLocK-range(portion of other FLocK types in15nearest neighbors)* *FLocK-min(portion of other FLocK types in15nearest neighbors)* *FLocK-max(portion of other FLocK types in15nearest neighbors)* *FLocK-kurtosis(portion of other FLocK types in15nearest neighbors)* *FLocK-skewness(portion of other FLocK types in15nearest neighbors)*	

Group B3 – The spatial arrangement of a specific type of FLocKs: use the centroids of a specific type of FLocK (e.g. Type1 or Type2) as nodes, we build global graph (Voronoi diagram, Delaunay Triangulation, and minimum spanning trees) to extract global graph features. Here we consider Type 1 FLocKs only.

Feature name	Description
FLocK-Type1FLocK centroid-Area Standard Deviation *FLocK-Type1FLocK centroid-Area Average* *FLocK-Type1FLocK centroid-Area Minimum / Maximum* *FLocK-Type1FLocK centroid-Area Disorder* *FLocK-Type1FLocK centroid-Perimeter Standard Deviation* *FLocK-Type1FLocK centroid-Perimeter Average*	**Use centroid of a Type 1 FLocK to construct Voronoi Diagram by connecting the centroids of all Type 1 FLocKs. Voronoi Diagram based-features related to the area, perimeter, and chord of Voronoi cells are calculated.**

FLocK-Type1FLocK centroid-Perimeter Minimum / Maximum ***FLocK-Type1FLocK centroid-Perimeter Disorder*** ***FLocK-Type1FLocK centroid-Chord Standard Deviation*** ***FLocK-Type1FLocK centroid-Chord Average*** ***FLocK-Type1FLocK centroid-Chord Minimum / Maximum*** ***FLocK-Type1FLocK centroid-Chord Disorder***	
FLocK-Type1FLocK centroid-Side Length Minimum / Maximum ***FLocK-Type1FLocK centroid-Side Length Standard Deviation*** ***FLocK-Type1FLocK centroid-Side Length Average*** ***FLocK-Type1FLocK centroid-Side Length Disorder*** ***FLocK-Type1FLocK centroid-Triangle Area Minimum / Maximum*** ***FLocK-Type1FLocK centroid-Triangle Area Standard Deviation*** ***FLocK-Type1FLocK centroid-Triangle Area Average*** ***FLocK-Type1FLocK centroid-Triangle Area Disorder***	**Use Type 1 FLocK centroid to construct Delaunay Triangulation by connecting the centroids of all Type 1 FLocKs. Delaunay Triangulation based-features related to the triangle side length, and triangle area are calculated.**
FLocK-Type1FLocK centroid-MST Edge Length Average ***FLocK-Type1FLocK centroid-MST Edge Length Standard Deviation*** ***FLocK-Type1FLocK centroid-MST Edge Length Minimum / Maximum*** ***FLocK-Type1FLocK centroid-MST Edge Length Disorder***	**Use Type 1 FLocK centroid to construct Minimum Spanning Tree (MST) by connecting the centroids of all Type 1 FLocKs. MST based-features related to the edge length are calculated.**
FLocK-Type1FLocK centroid-Area of polygons ***FLocK-Type1FLocK centroid-Number of nuclei*** ***FLocK-Type1FLocK centroid-Density of Nuclei*** ***FLocK-Type1FLocK centroid-Average distance to 3 Nearest Neighbors*** ***FLocK-Type1FLocK centroid-Average distance to 5 Nearest Neighbors*** ***FLocK-Type1FLocK centroid-Average distance to 7 Nearest Neighbors*** ***FLocK-Type1FLocK centroid-Standard Deviation distance to 3 Nearest Neighbors*** ***FLocK-Type1FLocK centroid-Standard Deviation distance to 5 Nearest Neighbors*** ***FLocK-Type1FLocK centroid-Standard Deviation distance to 7 Nearest Neighbors*** ***FLocK-Type1FLocK centroid-Disorder of distance to 3 Nearest Neighbors***	**Calculate Euclidean distances between centroids of Type 1 FLocKs and centroids of other FLocKs. Euclidean distance based-features, including statistics of K-nearest neighbors, and nearest neighbors in a certain pixel radius.**

FLocK-Type1FLocK centroid-Disorder of distance to 5 Nearest Neighbors	
FLocK-Type1FLocK centroid-Disorder of distance to 7 Nearest Neighbors	
FLocK-Type1FLocK centroid-Avg. Nearest Neighbors in a 10 Pixel Radius	
FLocK-Type1FLocK centroid-Avg. Nearest Neighbors in a 20 Pixel Radius	
FLocK-Type1FLocK centroid-Avg. Nearest Neighbors in a 30 Pixel Radius	
FLocK-Type1FLocK centroid-Avg. Nearest Neighbors in a 40 Pixel Radius	
FLocK-Type1FLocK centroid-Avg. Nearest Neighbors in a 50 Pixel Radius	
FLocK-Type1FLocK centroid-Standard Deviation Nearest Neighbors in a 10 Pixel Radius	
FLocK-Type1FLocK centroid-Standard Deviation Nearest Neighbors in a 20 Pixel Radius	
FLocK-Type1FLocK centroid-Standard Deviation Nearest Neighbors in a 30 Pixel Radius	
FLocK-Type1FLocK centroid-Standard Deviation Nearest Neighbors in a 40 Pixel Radius	
FLocK-Type1FLocK centroid-Standard Deviation Nearest Neighbors in a 50 Pixel Radius	
FLocK-Type1FLocK centroid-Disorder of Nearest Neighbors in a 10 Pixel Radius	
FLocK-Type1FLocK centroid-Disorder of Nearest Neighbors in a 20 Pixel Radius	
FLocK-Type1FLocK centroid-Disorder of Nearest Neighbors in a 30 Pixel Radius	
FLocK-Type1FLocK centroid-Disorder of Nearest Neighbors in a 40 Pixel Radius	
FLocK-Type1FLocK centroid-Disorder of Nearest Neighbors in a 50 Pixel Radius	