5th Progress Report

Alla Petrakova & Steve Mussmann

DivCluST

2012 algorithm.

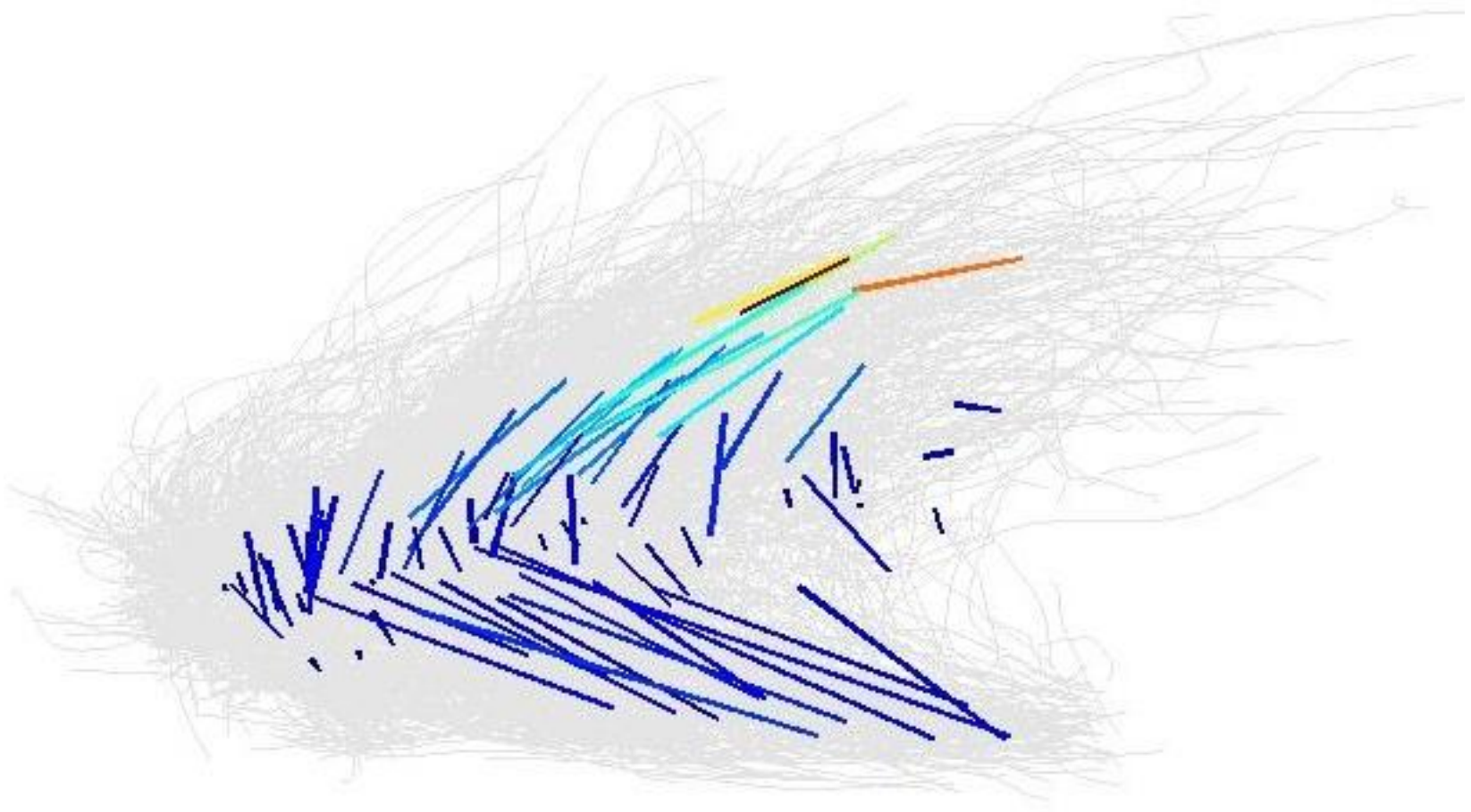
2 steps:

-Shorten trajectories while keeping spatio-temporal structure

-Cluster segments of shorter trajectories

Similar in form to TraClus but uses speed in addition to spatial information.

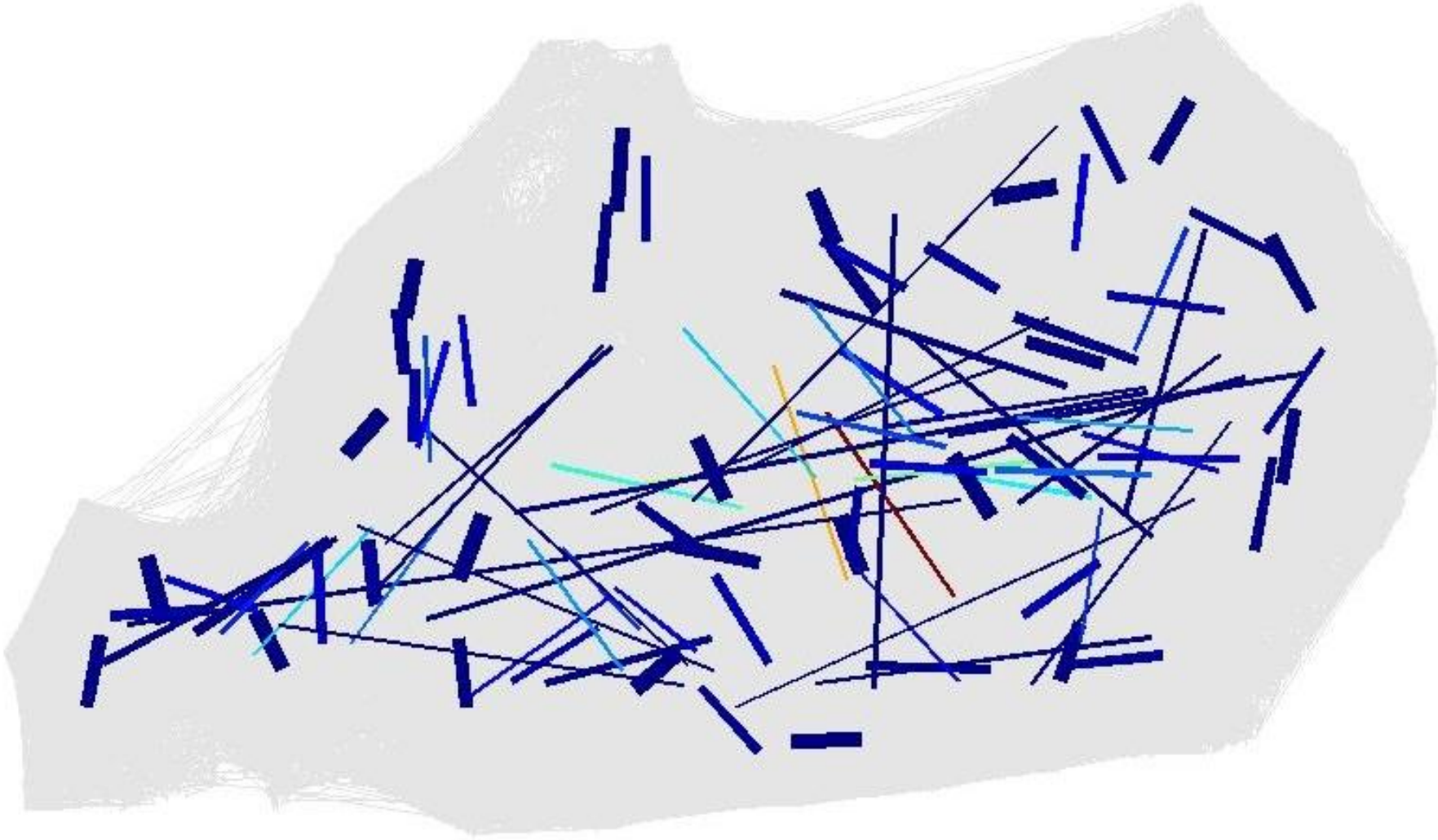
Hurricane



Trucks



Starkey



Learning trajectory patterns by clustering

-2009 paper.

-Mix and match trajectory similarity measures and clustering techniques.

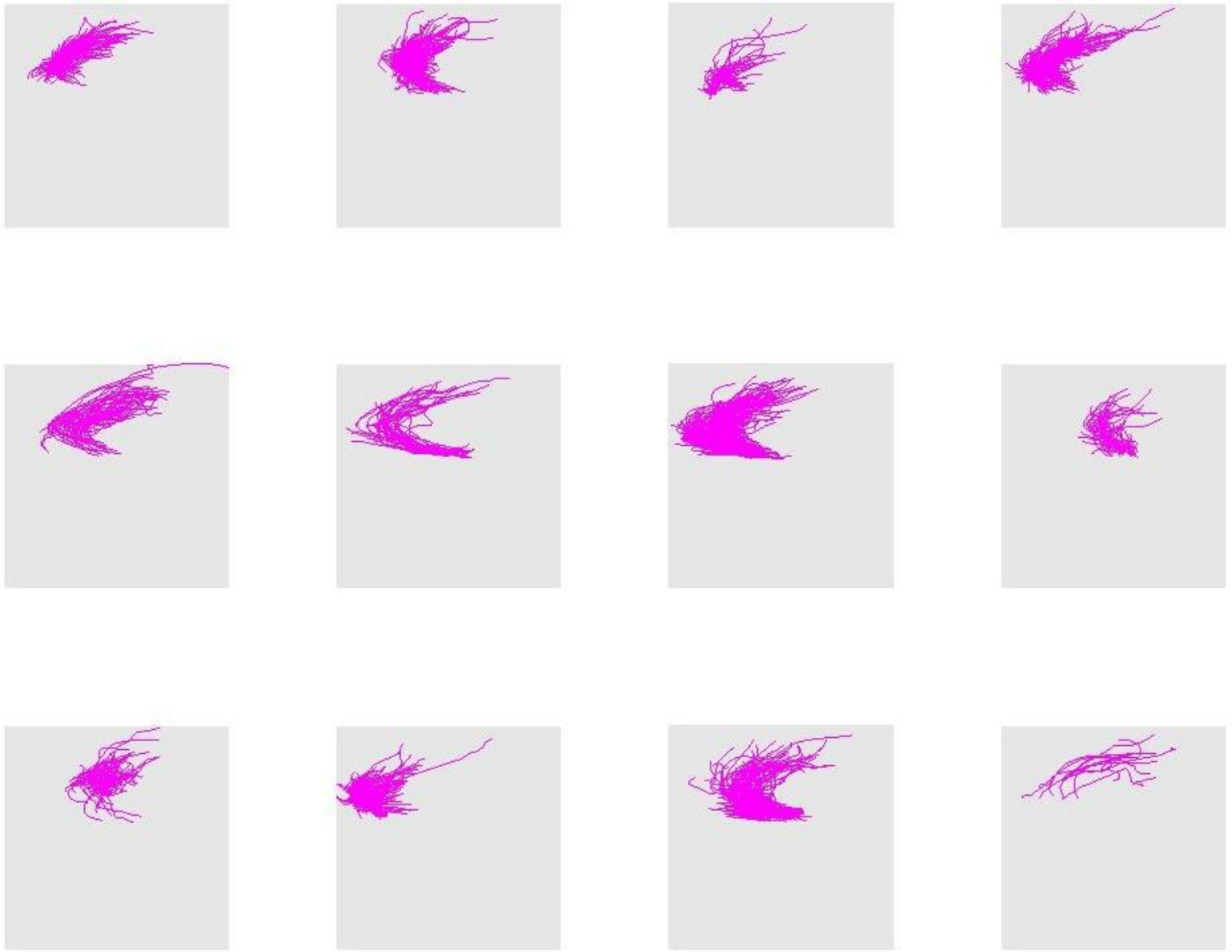
-"The choice of clustering method

and distance measure was not important... though LCSS was consistently

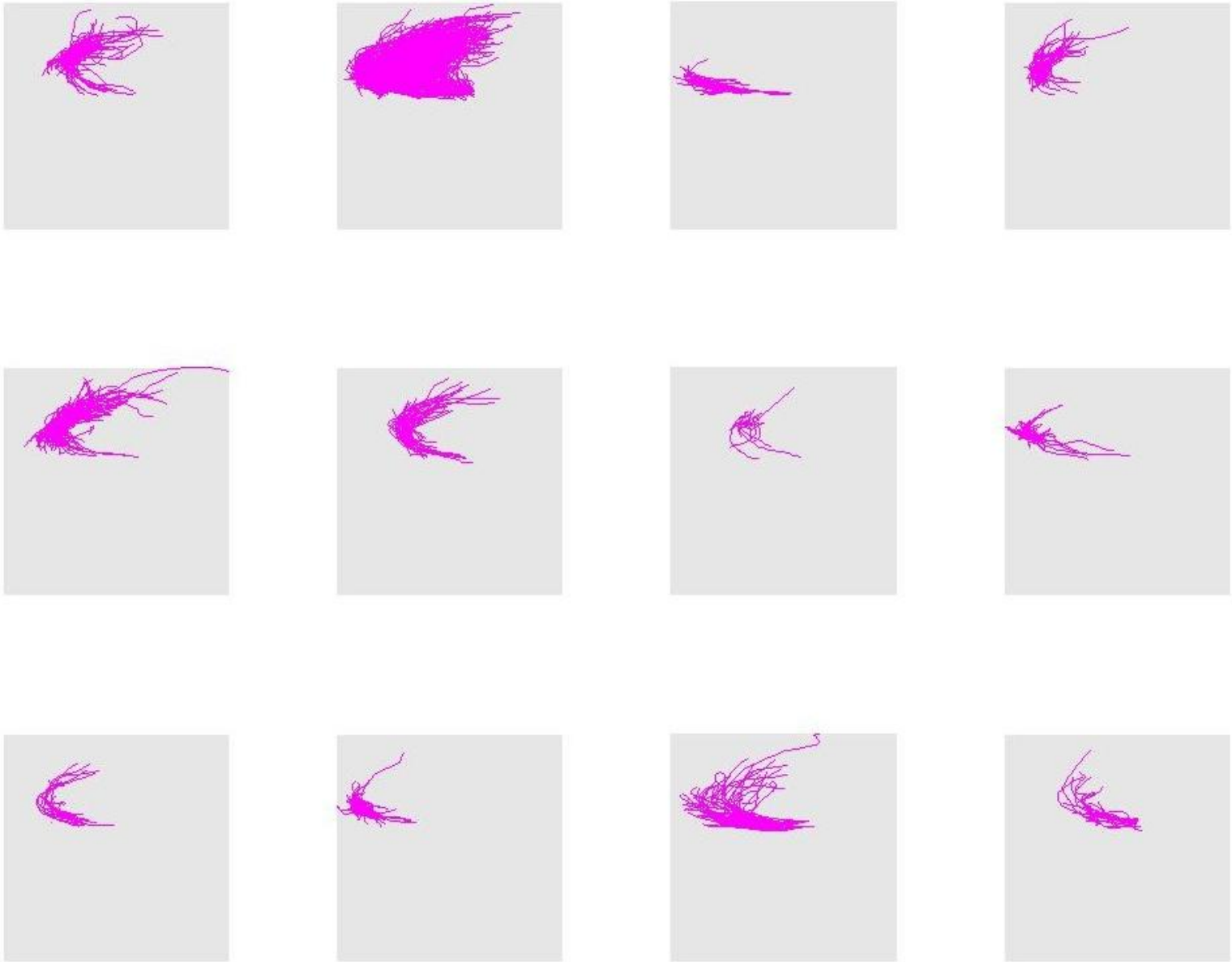
a top performer"

-Implemented LCSS and modified Hausdorff with agglomerative clustering.

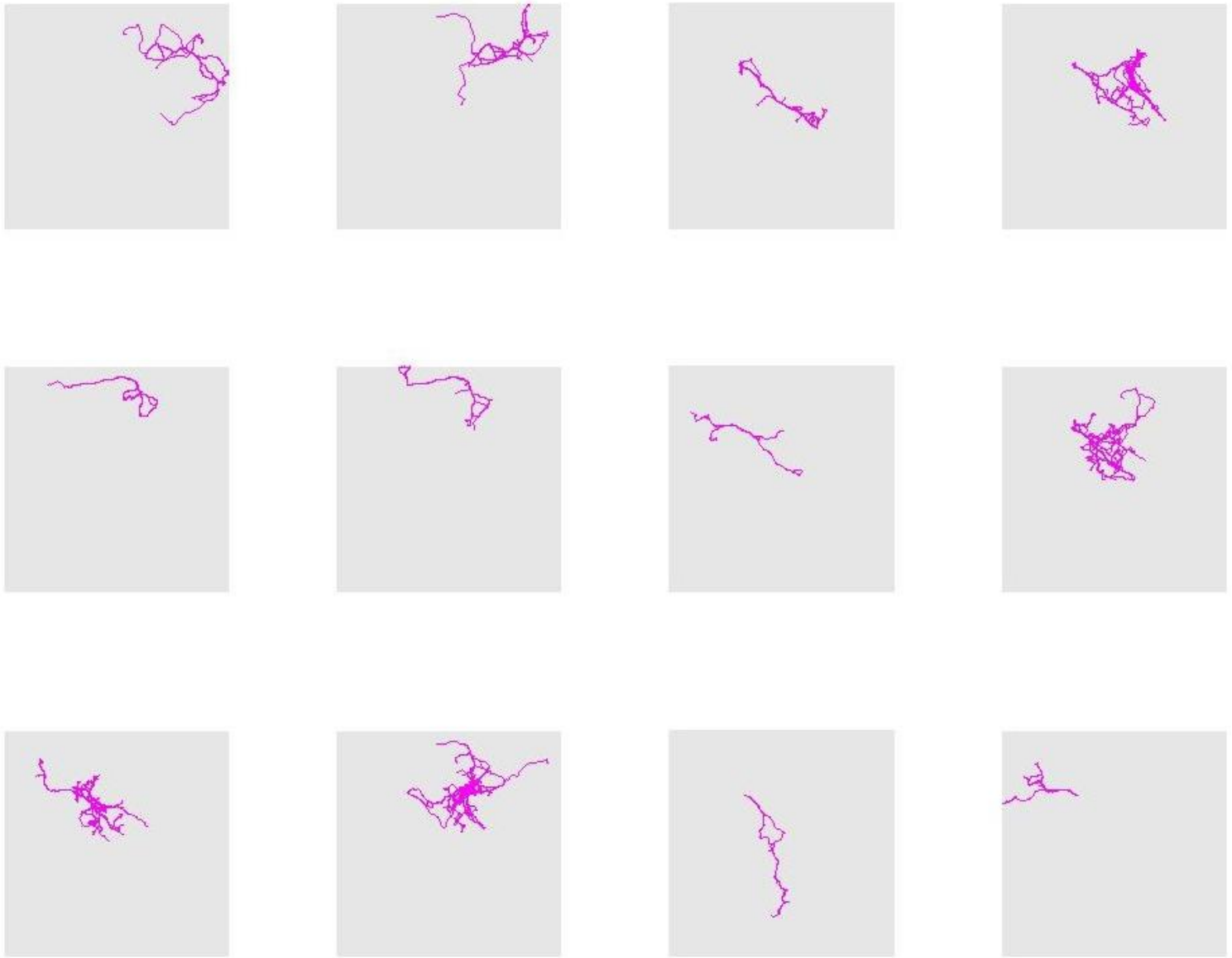
Hurricane Modified Hausdorff



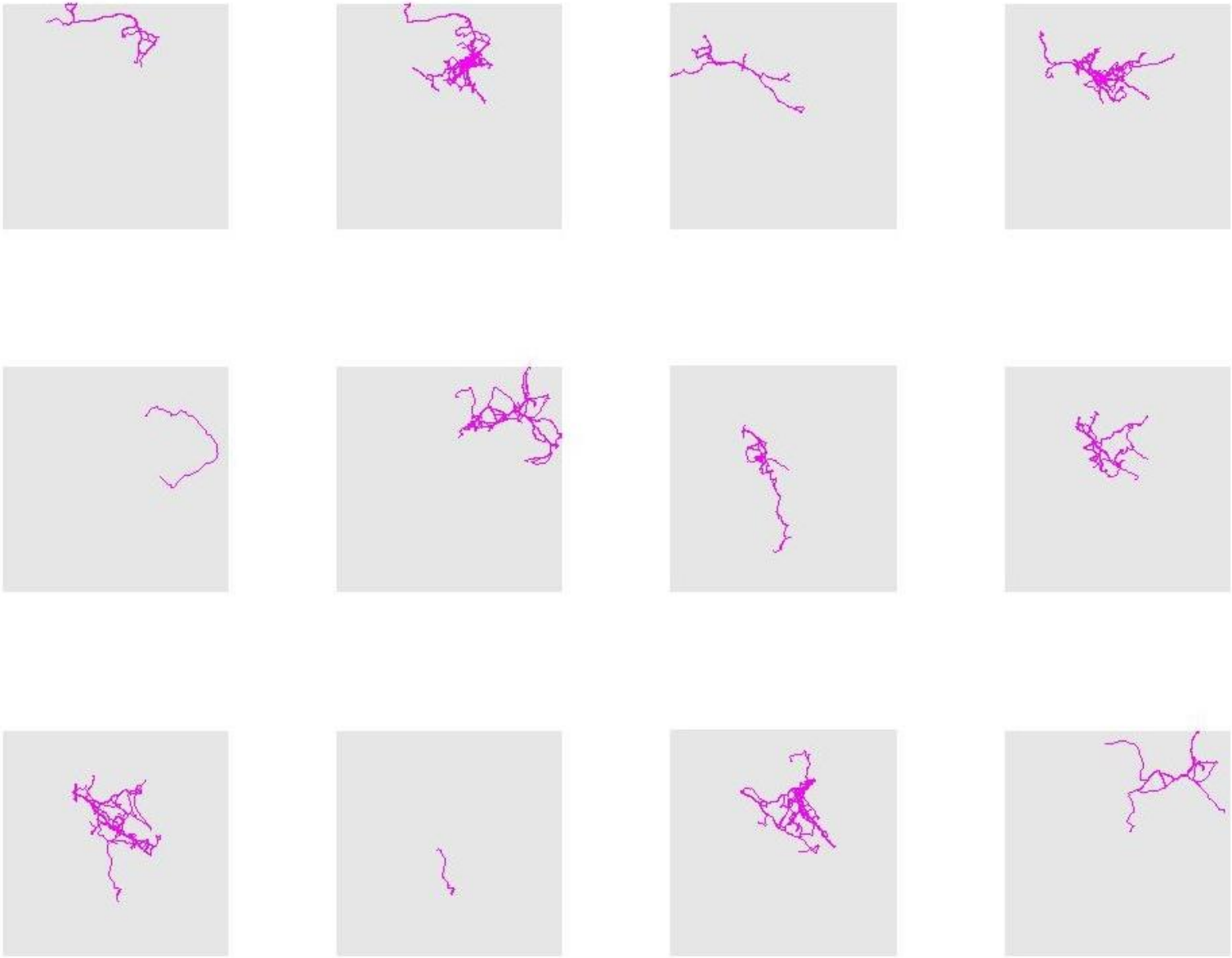
Hurricane LCSS



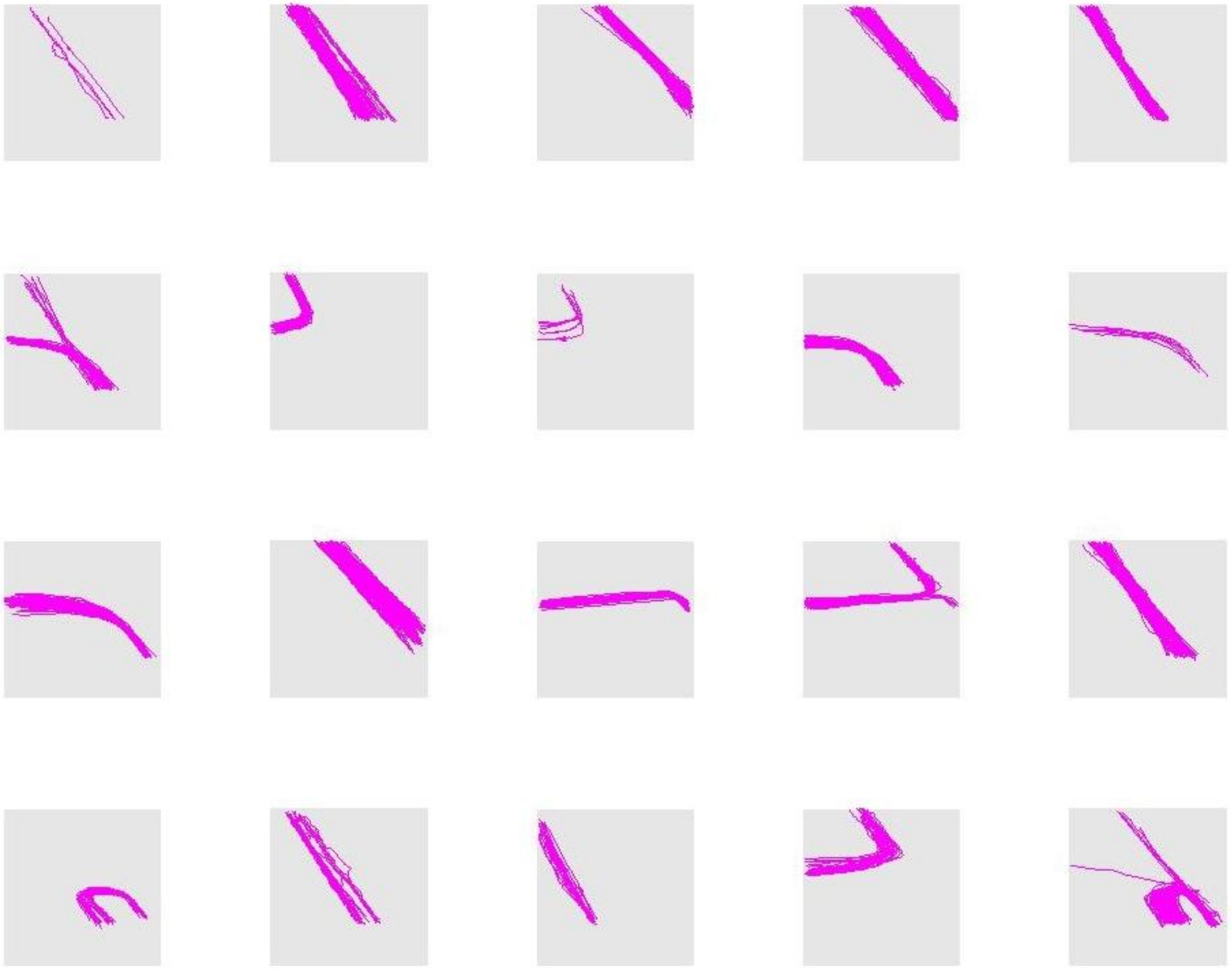
Trucks Modified Hausdorff



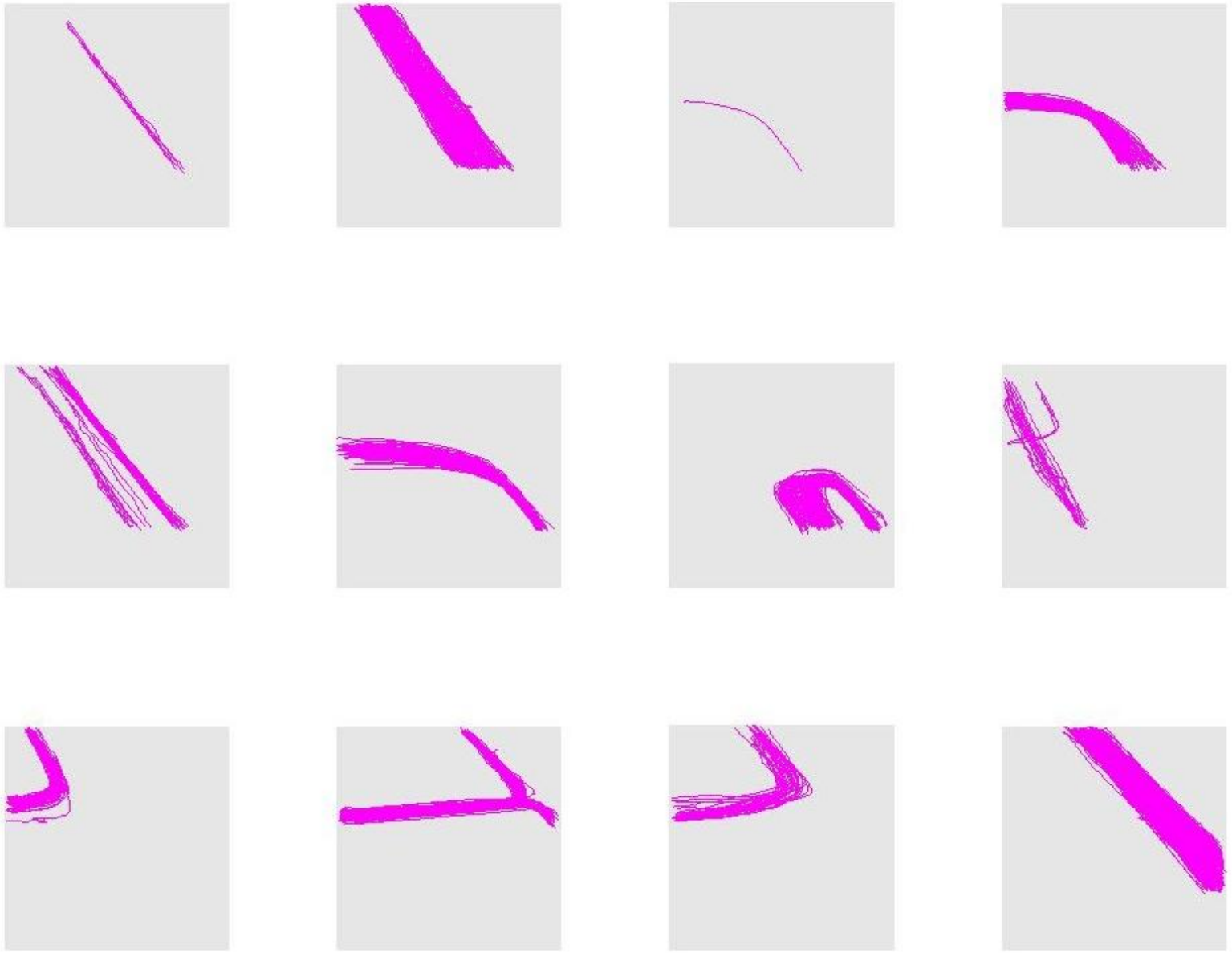
Trucks LCSS



Intersection Modified Hausdorff



Intersection LCSS



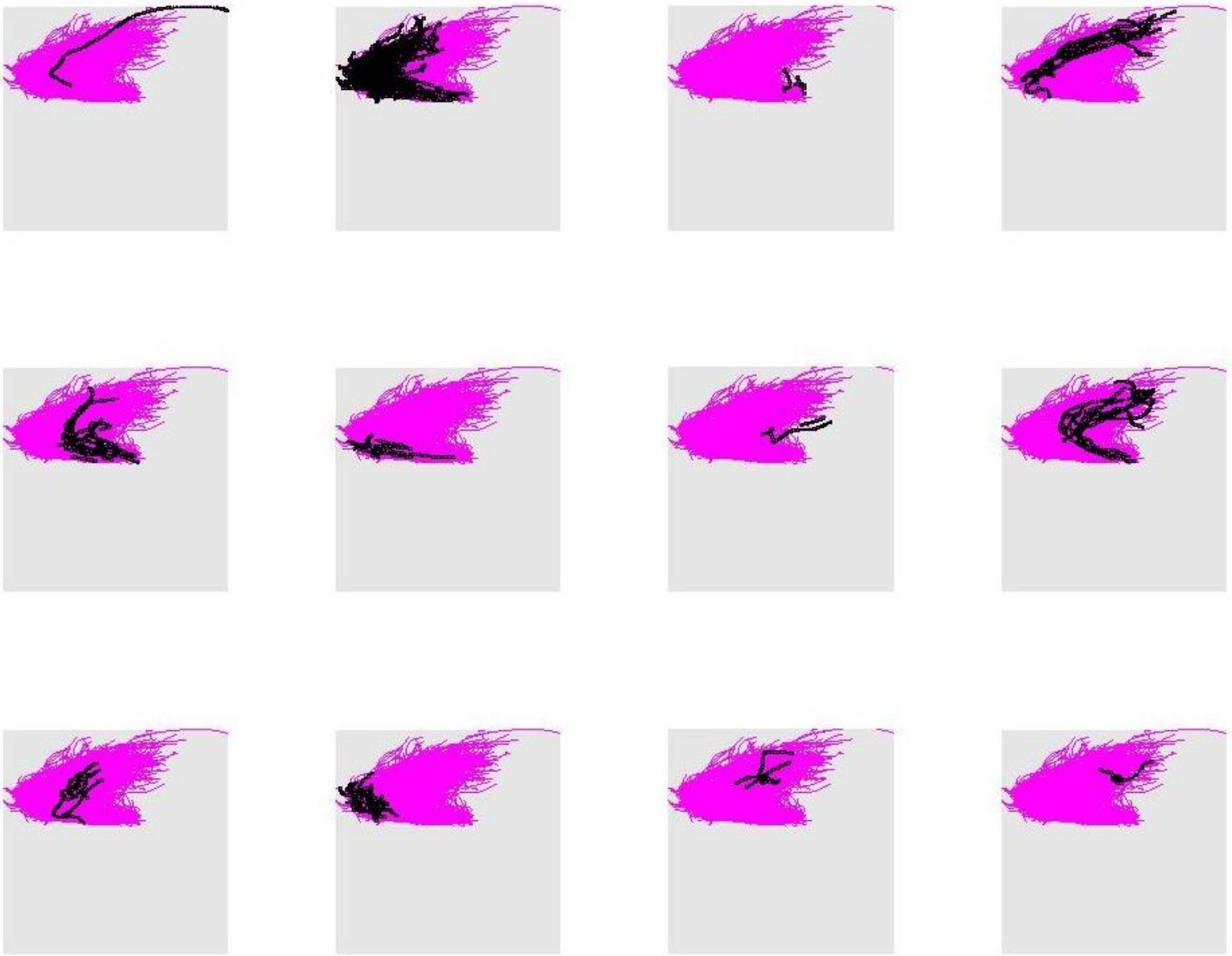
Robust online trajectory clustering

-2012 Paper

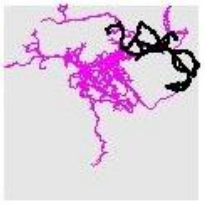
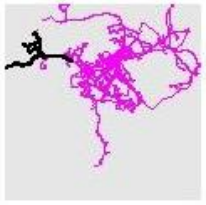
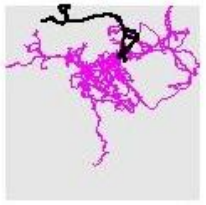
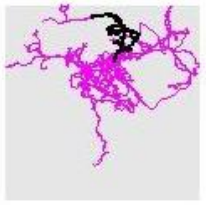
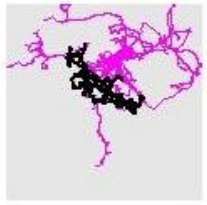
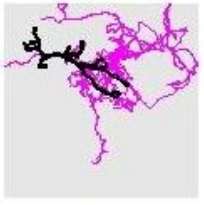
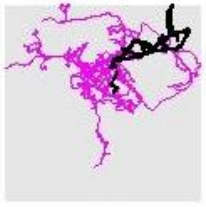
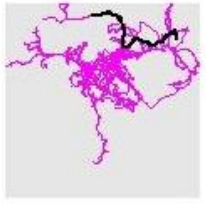
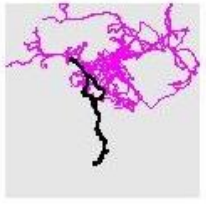
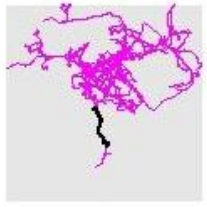
-View clusters as direction fields (unit vector fields).

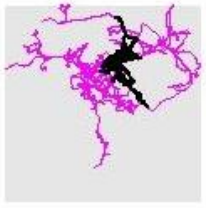
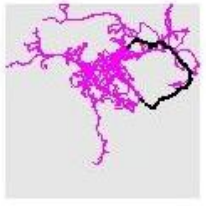
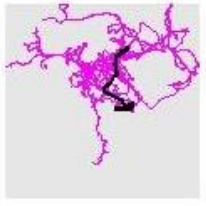
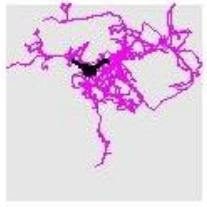
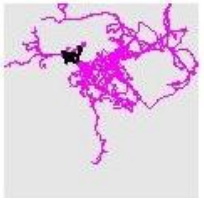
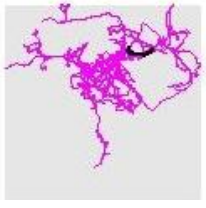
-Incrementally add trajectories and merge clusters

Hurricane



Trucks

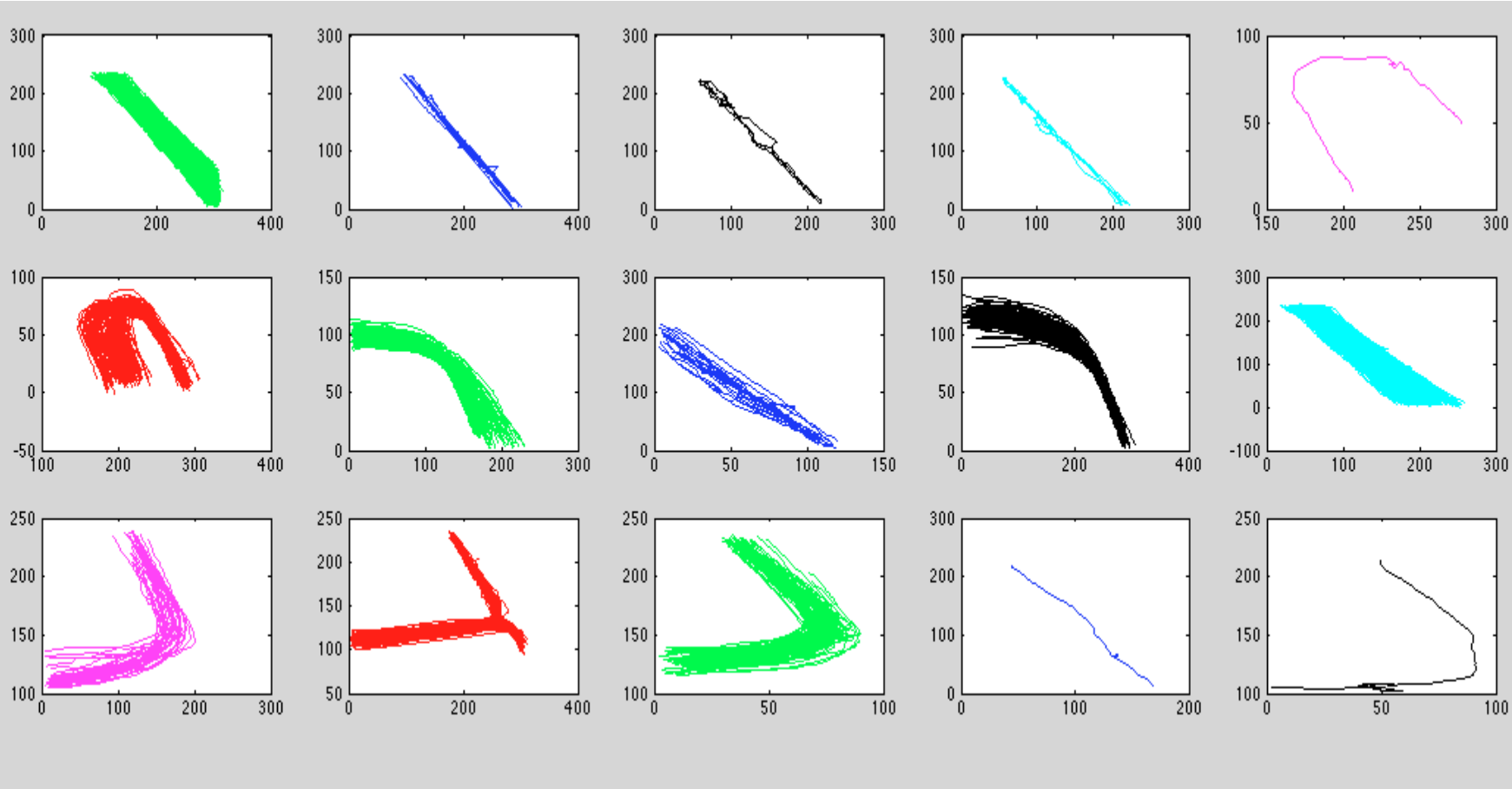
Intersection



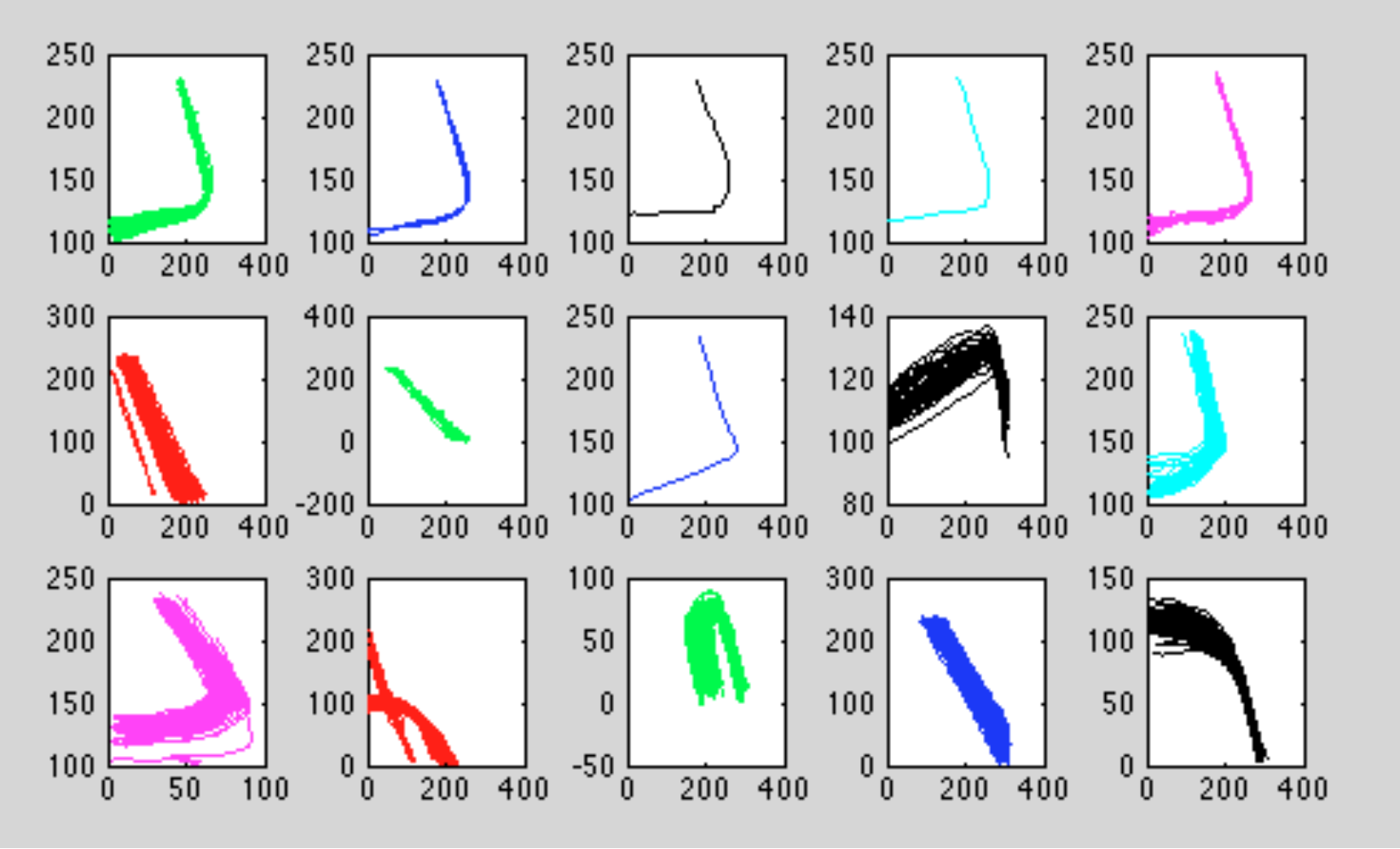
Clustering of Vehicle Trajectories

- 2010 paper (26 citations)
- Proposes a twist on modified Hausdorff difference distance measure
- Compares results against LCSS and DTW using Agglomerative and Spectral clustering

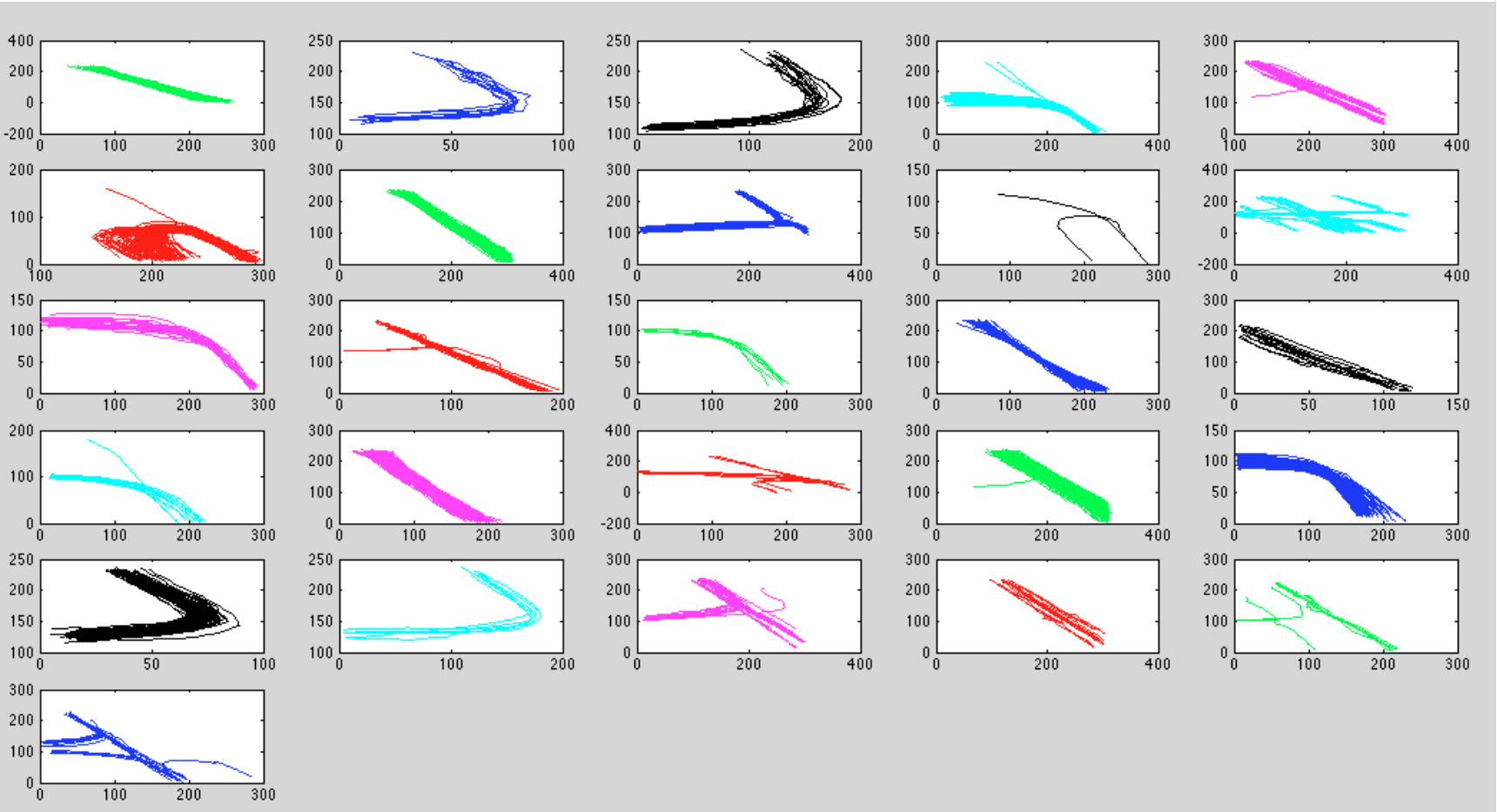
Vehicle Motion - Agglomerative DTW



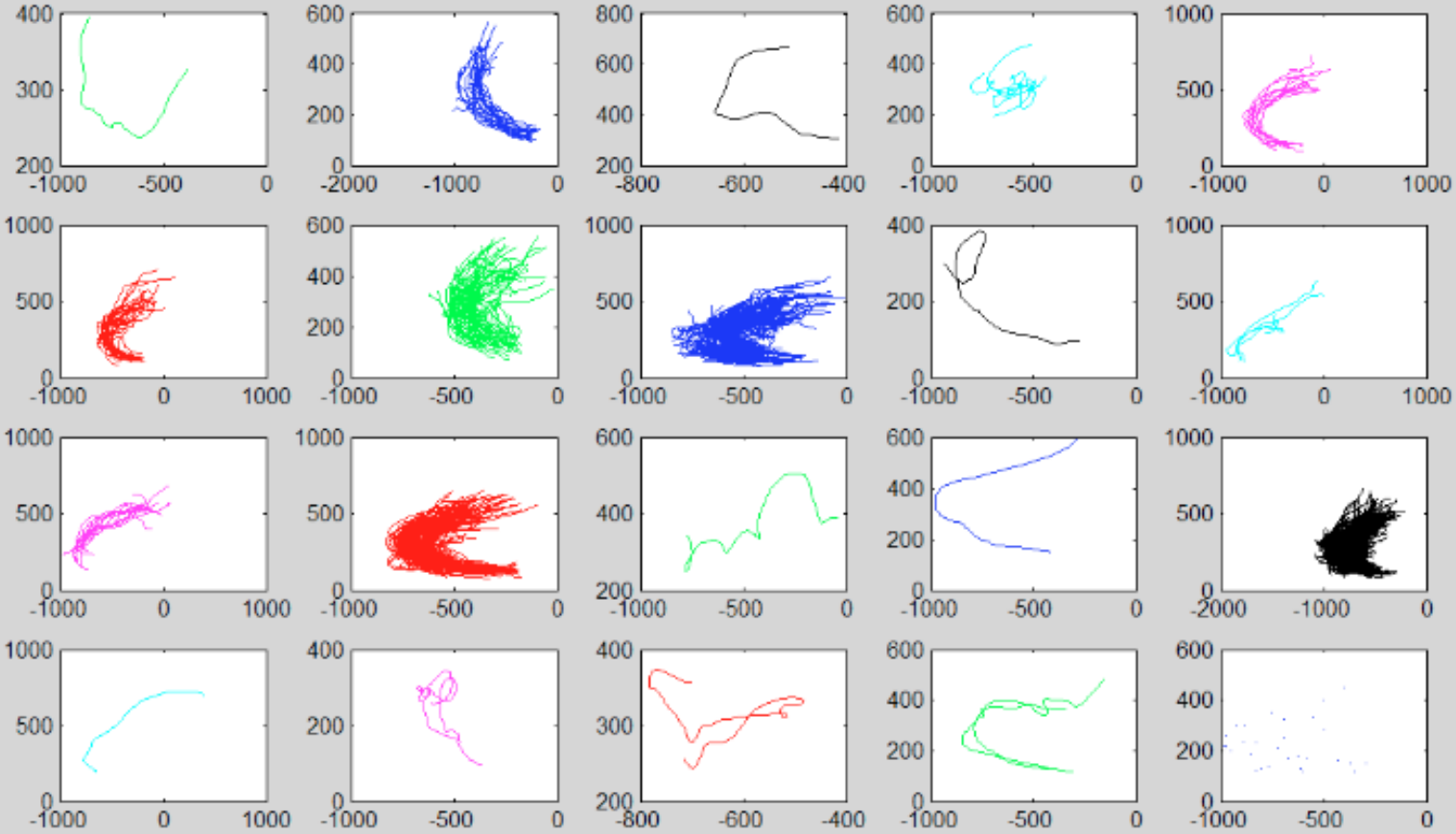
Vehicle Motion - mod Hausdorff



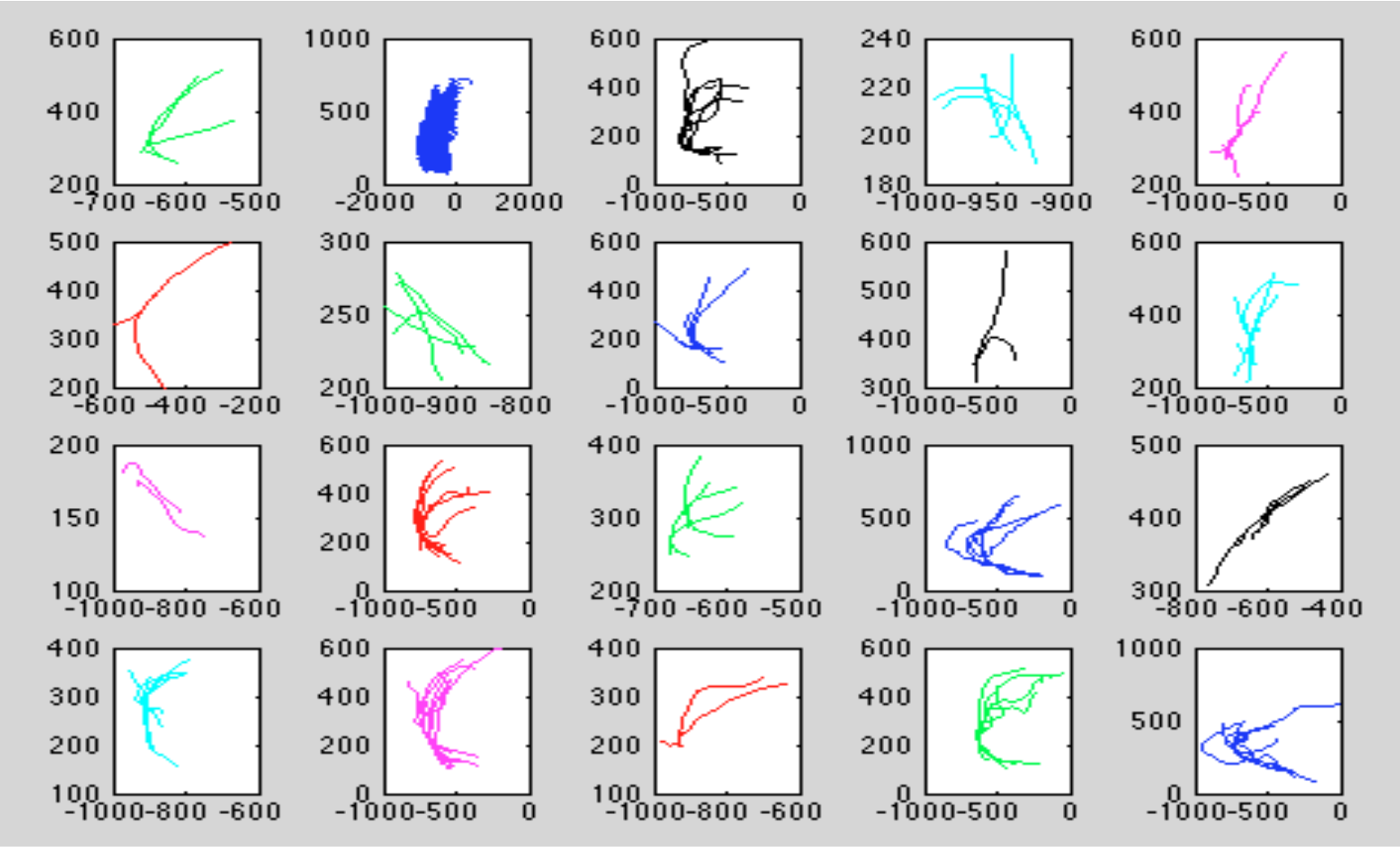
Vehicle Motion - LCSS



Hurricane Dataset - Agglomerative DTW



Hurricane Dataset - Agglomerative LCSS



Trucks Dataset - DTW

