The Fréchet distance calculation is available in SHAME -- Shape Matching Library, <http://www.cs.uu.nl/groups/AA/multimedia/matching/shame.html>, accessed 5 May, 2011. The library requires installation of the Computational Geometry Algorithms Library (CGAL) and is not accessible from MATLAB. The following scripts and functions were written to provide a version that can be run in MATLAB, but the computation is not efficient.

The following are used to illustrate the Fréchet decision problem interactively.

1. Frechet\_main.m: this is the main script for running the frechet\_decide function. The user interactively enters a leash length.
2. frechet\_decide: [decide] = frechet\_decide(P,Q,len,plotFSD,printFSD)where P and Q are 2 by I or 2 by J matrices describing the polygonal trajectories, len is the leash length, and the remaining parameters control plot and print options.

The following functions are used to compute the Fréchet distance within a script or function. They rely on a set of values computed as global variables by the function frechet\_init. This function must be run first. If subsequent Fréchet distances are needed, the global variables must be cleared and recomputed.

1. frechet\_init: frechet\_init(P,Q) where P and Q are 2 by I or 2 by J matrices describing the polygonal trajectories. This function initiates the arrays lP, lQ, lPQ, bP, and bQ as global variables.
2. frechet\_decide\_RevA: [decide] = frechet\_decide\_RevA(P,Q,len,plotFSD,printFSD) where P and Q are 2 by I or 2 by J matrices describing the polygonal trajectories, len is the leash length, and the remaining parameters control plot and print options. This version is a modification of frechet\_decide to make use of the arrays computed by frechet\_init. It’s called by frechet\_compute.
3. frechet\_compute: sol\_len = frechet\_compute(P,Q,pf) where P and Q are 2 by I or 2 by J matrices describing the polygonal trajectories, pf controls printing. Computes the Fréchet distance between polygonal curves P and Q.