

Acht-Bits

Sosha Maarten Maarten Jesse

UvA

January 12, 2012

Database & Tools

GPS Data

The transmitter collects accelerometer and GPS data. The accelerometer data is very big so we decided to start with only the GPS data.

- ▶ Get latitude, longitude and altitude data
- ▶ Only use points above the North Sea

Software

We use the following tools:

- ▶ Matlab for calculations
- ▶ Google Earth for visualizing bird flight in 3D (?)

Clusters

Clustering

We want our program to detect intervals in which the bird is performing a behaviour; creating clusters of data that are easy to label. To detect clusters we search for *change* in speed and direction, the second order derivative of the location. The plan:

- ▶ Calculate the derivative of the speed as a vector
- ▶ If this vector is above a threshold it is a cluster transition
- ▶ Areas with unstable vectors also become clusters
- ▶ Manually label the clusters

Learning

We then attach features (representations of the GPS data) to each cluster so we can use machine learning to automatically label data.