

I-TAP - IFT's Trajectory Analysis Program

I-TAP is a software toolkit that takes trajectories of moving vehicles extracted from aerial images or video, and performs Pattern of Life (PoL) analysis on the traffic flow.

In the current prototype, I-TAP uses the trajectories of individual motor vehicles from both simulated and real WAMI (WPAFB09) data and performs several PoL analyses, including abnormal traffic patterns detection, frequent trajectory patterns detection, as well as detecting trajectories passing by user selected places of interest (PoIs).

Features and functions

- Extract useful information from trajectory data
- Monitor traffic patterns and detect abnormalities
- Layered visualization
- Locate places of interest through Google™ Places API
- User defined places of interest
- **Visualization of the correlation between map and raw data**
- Ability to interact with Distributed Data Framework (DDF) for system integration

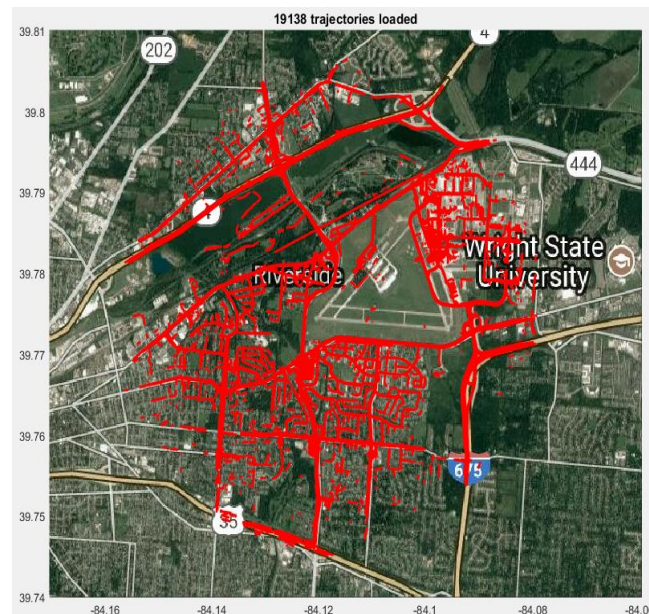


Figure 1: i-TAP aims at extracting useful information from trajectory data sets, such as the one shown above.



MAJOR FUNCTIONALITIES

Traffic Pattern Analysis

Frequent Trajectory Patterns Detection

Places of Interest Database Construction

Entity Relationship Model Based Analysis

MATLAB™ Based Development Prototype Interface

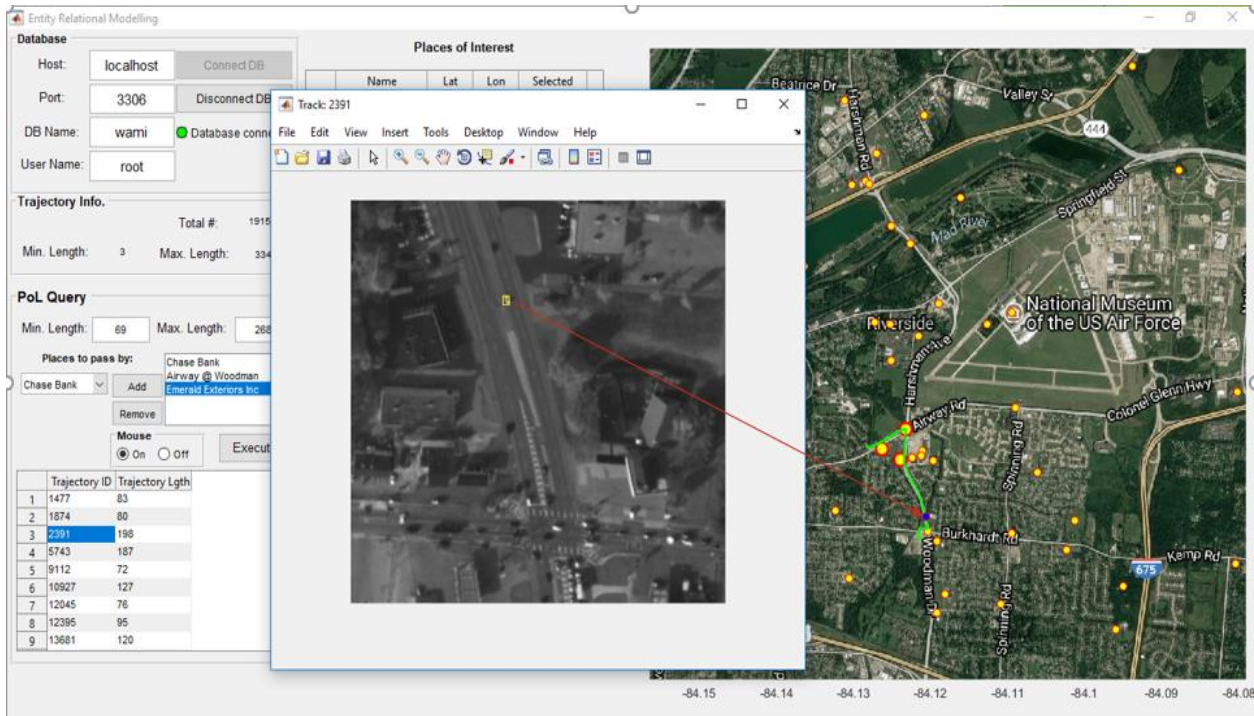


Figure 2: i-TAP allows users to visualize the correlation between raw data (left) and map view (right)

Distributed Data Framework (DDF) Integration

For each cluster, or detected trajectory pattern, one JPEG and one JSON files are uploaded.

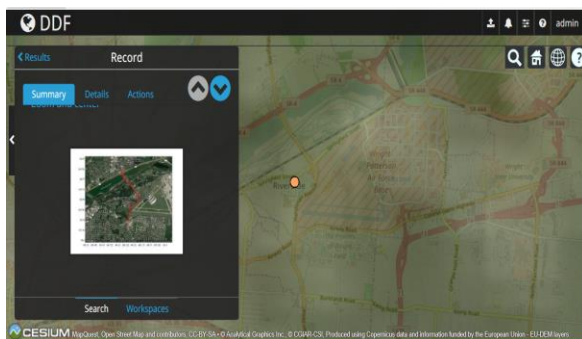


Figure 3: Screenshot of a jpeg file uploaded to DDF which shows all the trajectories in the cluster.

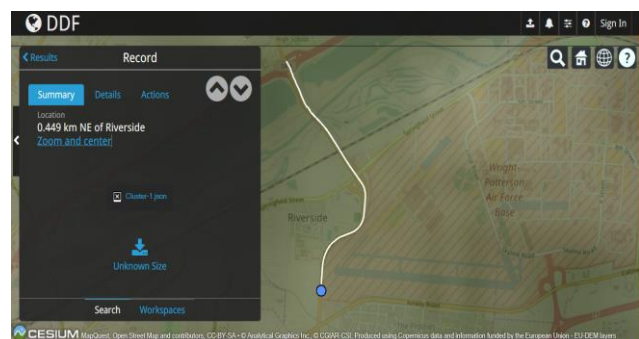


Figure 4: Screenshot of a json file uploaded to DDF which contains the representative trajectory corresponding to the cluster.

Company Overview

We are a rapidly growing company headquartered outside Washington, DC, in Germantown, MD. IFT is comprised of scientifically creative engineers with the rare ability to combine theoretical research and hardware implementation. IFT was founded in 2011. We are a woman-owned, small disadvantaged business.

Highlighted Research Areas:

- Signal and image processing
- Cooperative control and collaborative systems
- Networks and communication systems
- ATR, tracking and sensor fusion solutions
- Game and information theoretic solutions
- Display and user-interactive systems
- Antenna design and hardware implementations

Contact

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