

I-LAIST - IFT's Large Airborne Imagery Surveillance Toolkit

I-LAIST is a high performance computation toolkit for detecting and tracking, multiple moving targets in large scale visual data.

I-LAIST simultaneously tracks and detects moving target in large scale visual data, such as wide area motion imagery (WAMI). Existing visual tracking algorithms can only track a limited number of targets in a small area. I-LASIT operates within the framework of cloud computation and Graphic Processing Units (GPUs). I-LAIST uses a front end and a web based server to call Hadoop and highly parallelized computation functions based on CUDA/C++. This computational architecture processes images at a **real-time rate**. I-LAIST provides drastically improved tracking with low frame rates over realistic conditions.

The resulting trajectories can be uploaded into IFT's Trajectory Analysis Program (I-TAP) for performs Pattern of Life (PoL) analysis on the traffic flow.



SPECIFICATIONS & FEATURES

- Extract useful information from aerial image data
- Multiple moving target detection and tracking
- Real-time processing rate based on large scale image streaming
- Easy data storage and retrieval
- Computational architecture can be extended to other types of high performance computing

Visual Studios Based Development Prototype Interface

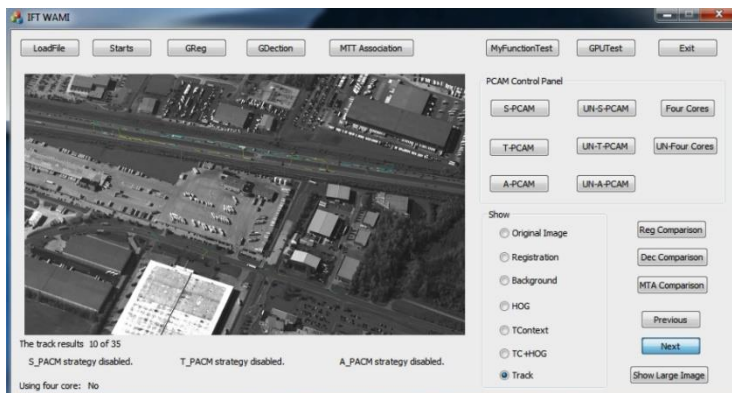


Figure 1: Screenshot of the prototype user interface. The image show vehicle detection with trajectories



Figure 2: Image of vehicle detection in WAMI data.

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

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