Video LINCS

VIDEO LINKING AND INTELLIGENCE FROM NON-COLLABORATIVE SENSORS

INTELLIGENCE VALUE

The Video LINCS program aims to develop re-identification methods that autonomously associate objects across diverse, non-collaborative, video sensor footage, to distill raw pixel data into spatio-temporal motion vectors, providing the ability to analyze these patterns for anomalies and threats

The goal of the Video LINCS program, is to research and develop novel capabilities to autonomously re-identify people and objects across diverse video sensor collections and geolocate them onto a map. Re-identification (reID) is the process of matching the same object across a video collection, to determine where the object appears throughout the footage. Video LINCS will research approaches that facilitate autonomous reID in an open-world setting where there is no advance knowledge of the sensors, scene, content or video collection geometries. ReID technologies will initially be developed for people and ultimately extend to all objects in the video footage without advance knowledge of specific object types. The capability to autonomously remap object locations from individual camera reference frames to a common geo-reference frame (geo-localization) will also be developed.

The program is structured as a single phase 18-month effort with expanded capabilities as the program progresses. Initial development will focus on reID within videos from similar sensor collection geometries and geo-localization will be performed when camera poses are known. Development will then progress to reID across different types of video collection platforms (such as between aerial drone and ground CCTV video sensor footage) and provided camera pose will have greater uncertainty. Ultimately, a generic object reID capability will be developed.

PRIME PERFORMERS

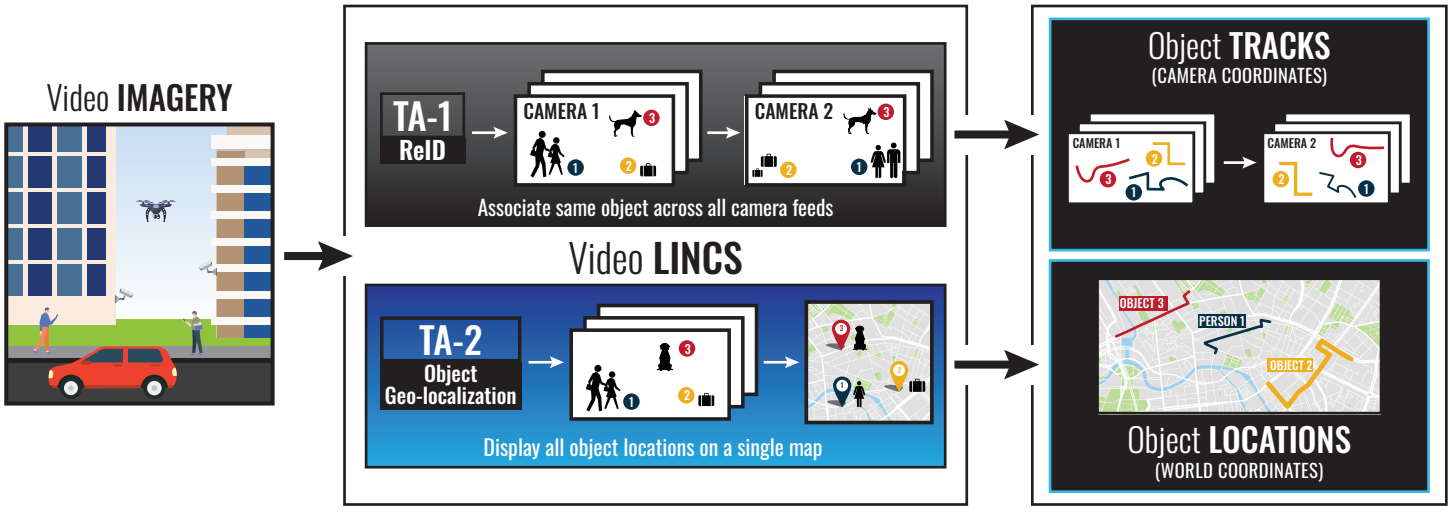
- Expedition Technology
- Novateur Research Solutions
- SRI International
- Systems and Technology Research

TESTING AND EVALUATION PARTNERS

- Massachusetts Institute of Technology - Lincoln Laboratory
- MITRE
- National Institute of Standards and Technology (NIST)
- Oak Ridge National Laboratory

KEYWORDS

- Computer vision
- Artificial Intelligence (AI)
- Re-identification (reID)
- Geo-localization
- Open-set reID



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