



Automatic Target Detection and Tracking in FLIR Image Sequences using Morphological Connected Operators

Ulisses Braga-Neto and John Goutsias

Center for Imaging Science and
Department of Electrical and Computer Engineering
The Johns Hopkins University
Baltimore, MD 21218

CIS Center for Imaging Science

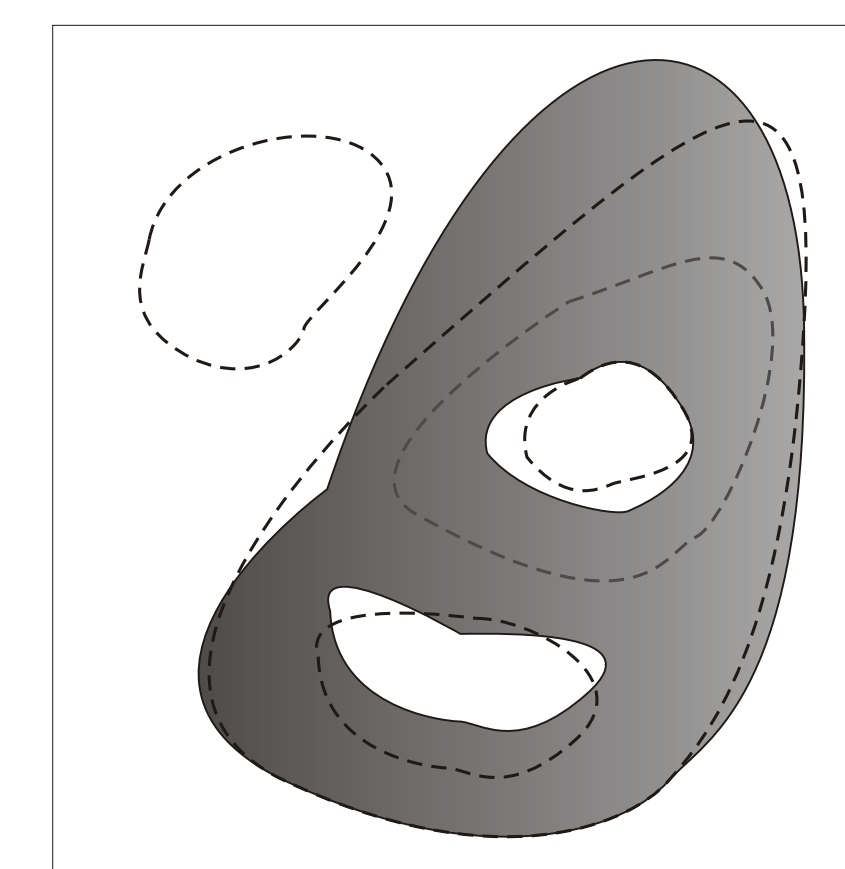


A method for effectively detecting and tracking targets in **FLIR image sequences** is proposed. The method is based on morphological connected operators, which act by merging **flat zones** of an image, thus demonstrating outstanding contour preservation properties.

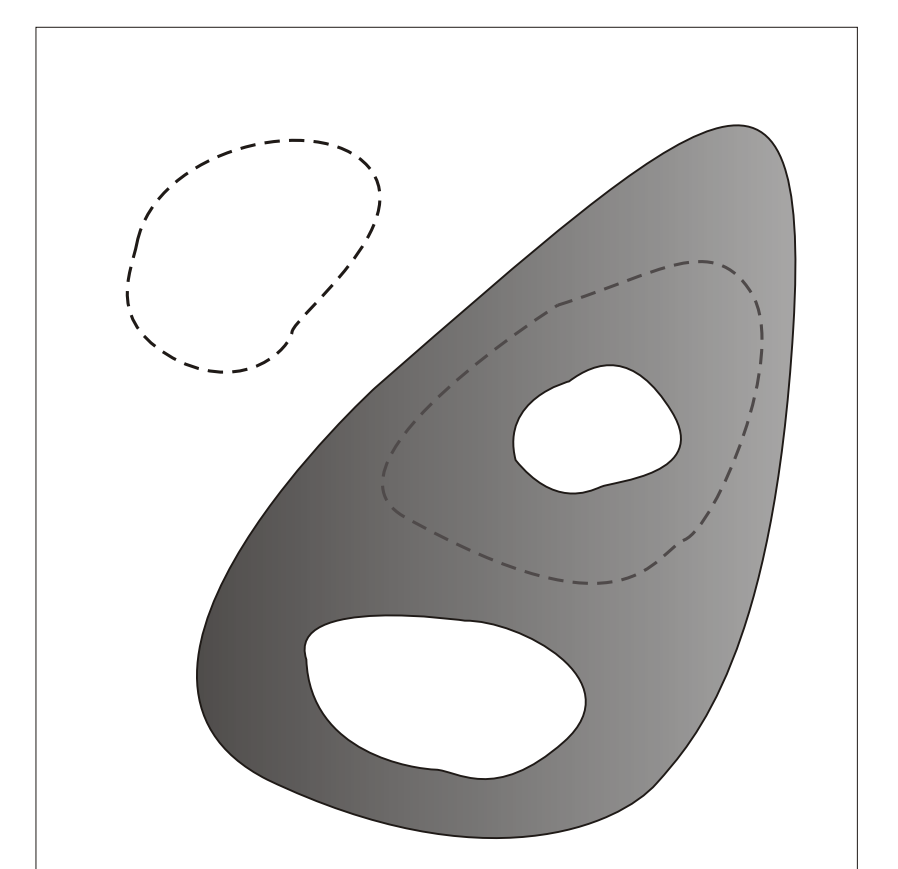
We employ **connected operators** based on general size, position and motion criteria, using **spatial intraframe** and **temporal interframe** information. Our method avoids the variability issue in typical battlefield FLIR scenes, since no modeling library of specific targets is required.



Original image



Output of an arbitrary operator



Output of a connected operator

Fig. 1: A binary example of contour preservation properties of morphological connected operators.

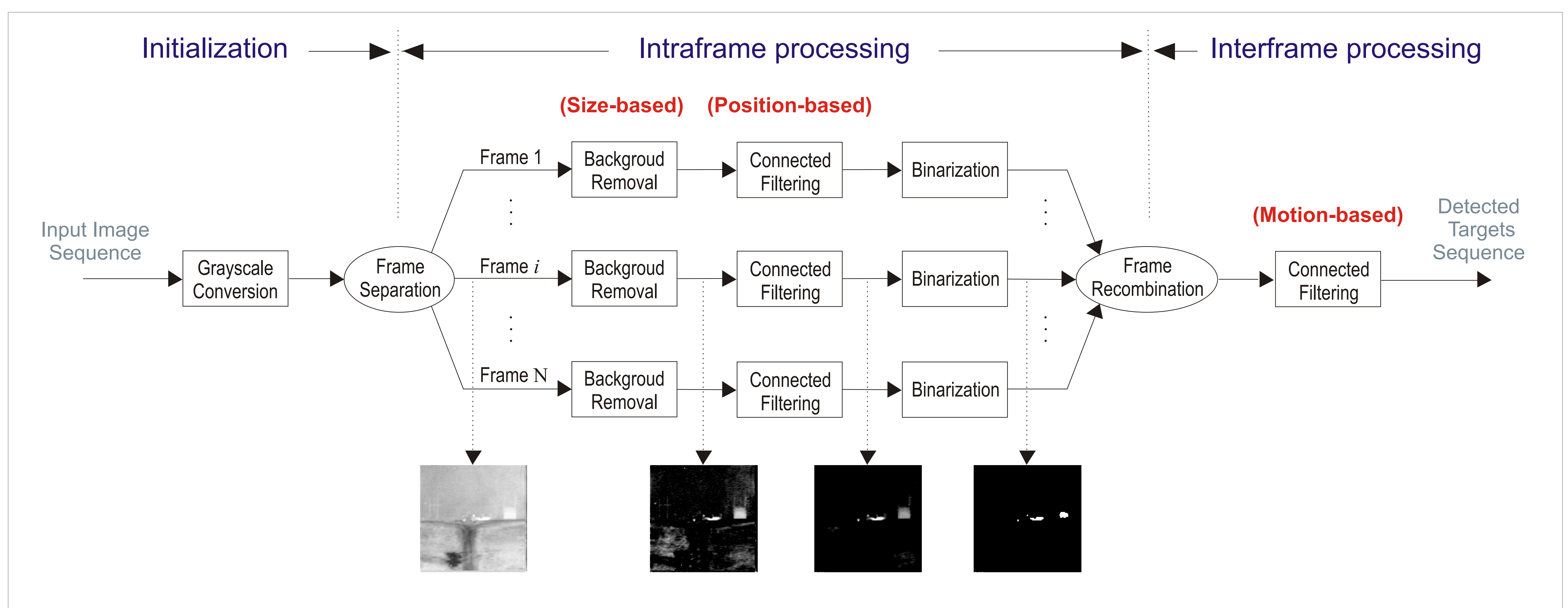


Fig. 2: The steps making up the proposed algorithm.

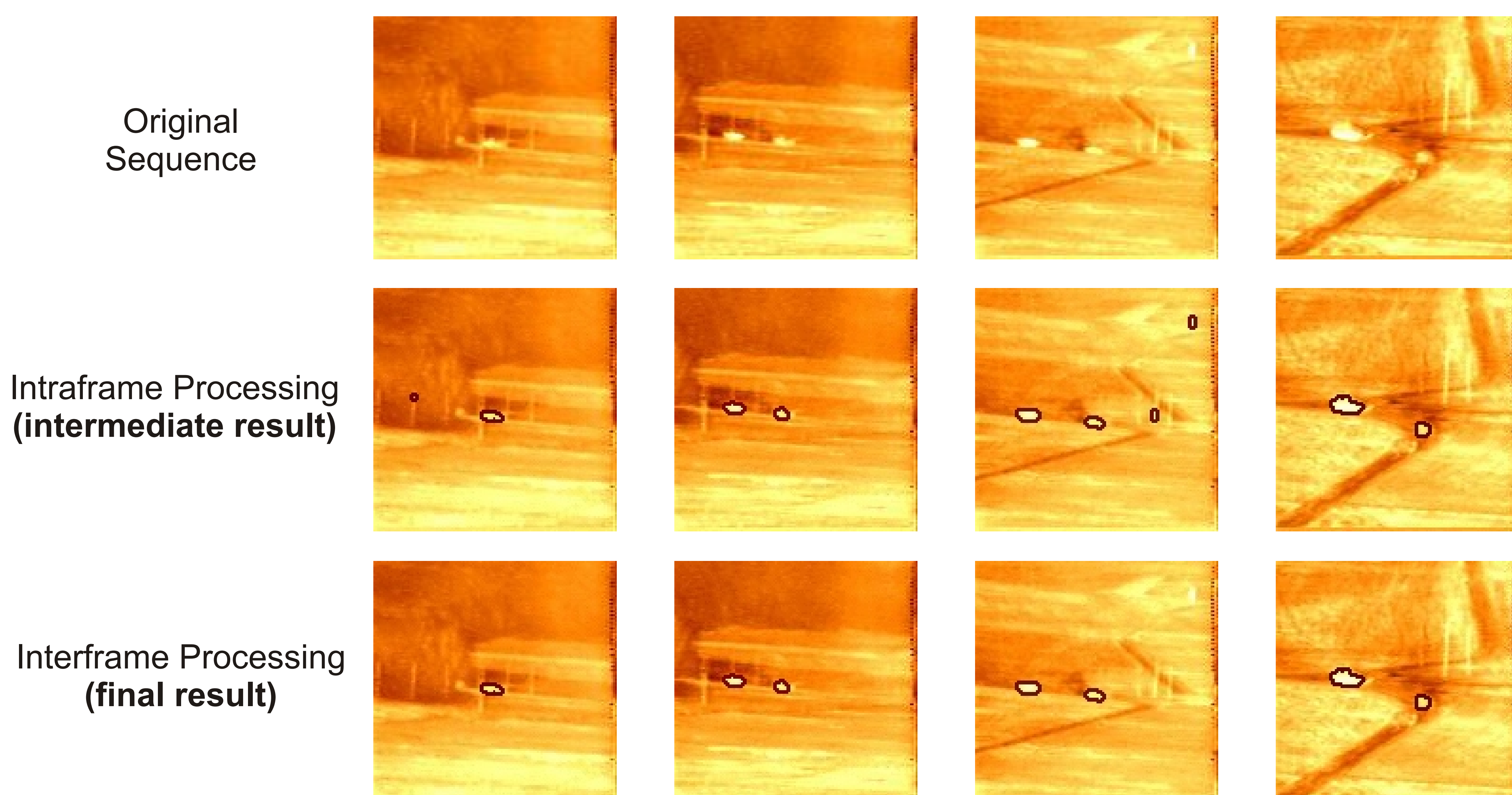


Fig. 3: Detection results (sample frames).