An Online Discriminative Approach to Background Subtraction

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ABSTRACT

We present a simple, principled approach to detecting foreground objects in video sequences in real-time. Our method is based on an on-line discriminative learning technique that is able to cope with illumination changes due to discontinuous switching, or illumination drifts caused by slower processes such as varying time of the day. Starting from a discriminative learning principle, we derive a training algorithm that, for each pixel, computes a weighted linear combination of selected past observations with time-decay. We present experimental results that show the proposed approach outperforms existing methods on both synthetic sequencse and real video data.