Learning temporal context for activity recognition

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Abstract.   We present a method that allows to improve activity recognition using temporal and spatial context. We investigate how incremental learning of long-term human activity patterns improves the accuracy of activity classification over time. Two datasets collected over several months containing hand-annotated activity in residential and office environments were chosen to evaluate the approach. Several types of spatial and temporal models were evaluated for each of these datasets and the efficiency of each method was assessed by the way it improved activity classification. The results indicate that incremental learning of daily routines allows to dramatically improve activity classification. For example, a weak classifier deployed in a single-inhabited apartment for a period of three weeks was enhanced with a temporal model that increased its accuracy from 20% to 60%.

1   The paper is still in review and is awailable on request only.

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