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Activity Recognition from Sensor Data in Football

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Abstract:
The past decade has seen an increased interest in human activity recognition. We use sensor data from smart trousers equipped with five inertial measurement units to classify activities in football. Most commonly, the raw data coming from sensors attached to body parts are unannotated, which creates a need for fast labelling method. Part of the procedure is choosing or designing an appropriate performance measure. We propose a new performance measure, the Locally Time-Shifted Measure, which addresses the issue of timing uncertainty of state transitions in the classification result. Our main contribution is a novel post-processing method for binary activity recognition. It improves the accuracy of the classification methods, by correcting for unrealistically short activities in the estimate.

Keywords:
Sports Statistics; Classification; Inertial Measurement Units; Post-Processing; Performance Measures

References:
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