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On Re-Identification of Warehousing Entities

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Re-identification is a deep learning based method, defined as the process of not only detecting but identifying a previously recorded subject over a network of cameras. During this process, the subject in question is assigned a unique descriptor, used to compare the current subject with previously recorded ones, stored in a database. Due to the use of a unique descriptor instead of a class, re-identification distinguishes itself from mere object detection. So far, re-identification methods have mostly been used in the context of surveillance, notably of pedestrians. Other entities seem to rarely be the subject of research, even though a plethora of research fields and industries, such as logistics and more precisely the warehousing industry, could profit from the application of these methods.

This presentation will therefore discuss the application of re-identification methods in the context of warehousing, with the aim of re-identifying warehousing entities (e.g. load carriers).

In particular, a novel dataset, namely for the re-identification of Euro-pallets, and the process of its creation and curation, along with a re-identification algorithm, will be presented. In this context, the use of statistical anomaly detection methods and the evaluation of the method's results based on the calculated similarity of feature vectors will be analyzed. Additionally, the derived benefits for industrial applications and a corresponding use case will be discussed.

Keywords

warehousing, datasets, re-identification

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