A RECURRENT NEURAL NETWORK WITH TRIPLET LOSS APPROACH FOR SIMILARITY MATCHING AND USER RE-IDENTIFICATION

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Abstract

The digital economy evolves with a growing amount of sequential marketing data including online browsing histories, location-based trajectories or sequential consumption patterns reflected in music listening or streams of video watching. Marketing analysts aim at utilizing this kind of data for profiling customers based on their inter-temporal behavioral similarities. However, detecting similarities and measuring distances between sequences poses a challenging problem. In particular, in the case of excessively high-dimensional data (i.e., if the numbers of alternatives are high) and increasingly long sequences, traditional similarity-based approaches to time series clustering or sequence alignment algorithms have their known weaknesses and limitations. In this paper, we present a generic solution to the problem of quantifying similarities in a high-dimensional, dynamic feature space based on a deep neural network approach. We apply this new methodology on the re-identification of Internet browsing histories using ComScore data and visualize sequential customer behavior in the resulting embedding space.

Keywords: *User Re-Identification; Behavioral Segmentation; Online Marketing*

Track: Methods, Modelling & Marketing Analytics