

Deep Learning Models for Product Mapping

Abstract

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The thesis addresses the challenge of matching products from different e-commerce platforms called Product Mapping. The problem in Product Mapping is to decide whether two products from various sources refer to the same product. The main goal of this thesis is to evaluate different deep-learning approaches to increase the accuracy of Product Mapping techniques. We use all available textual and image data that can be extracted from e-commerce platforms to find the most suitable models techniques. We experiment with four different datasets: ProMapEn, ProMapCz, Amazon-Google, and Amazon-Walmart. We compare models such as TF-IDF, Word2VEc, and BERT-based transformers for text preprocessing and we use CNNs like GG16, ResNet50, Inception V3, and EfficientNet for image preprocessing. Then, we use machine learning, and deep learning classifiers for computing similarity scores for individual features. We obtained promising results with BERT-based architectures for text data and multimodal models for mage data. These methods improve accuracy and F1 score, achieving superior results on the datasets. Which highlight the critical role of deep learning techniques in advancing the field of e-commerce product mapping.