

Which shoes fit this dress? Using product images to infer “perfect pairings” without supervision

Monday 16 November 2020 15:30 (30 minutes)

Product recommendations are omnipresent and contribute significantly to the revenue of online retail businesses. Nevertheless, customers often complain about the quality of recommendations. A possible explanation is that the requirements of existing approaches are not always met. The increasing speed of product assortment changes challenges collaborative filter techniques, which are subject to the cold start problem. Alternative approaches such as preference- or content-based recommendations systems require detailed structured information (e.g., on product characteristics or previous customer purchase patterns), which is often not available. Addressing this challenge, the authors propose an unsupervised approach to infer recommendations across domains solely based on product images. With the increasing interest in deep learning techniques, convolutional neural networks have been used to infer single-domain recommendations based on the intrinsic information of product images (e.g., recommend alternative dresses based on the image of a dress). Albeit promising, approaches to infer cross-domain recommendations are largely unexplored. Using generative adversarial networks and convolutional neural networks to leverage the implicit information in product images, the authors propose an unsupervised approach to make recommendations across product categories (e.g., recommend shoes based on an image of a dress). The performance of the approach is assessed by benchmarking to various empirical baselines as well as surveying potential customers on the perceived quality of the recommendations. Further, the authors discuss two extensions: (1) Making recommendations for multiple other domains based on a single product image as input and (2) making cross-domain recommendations based on multiple product images as input. Concluding, theoretical and managerial implications are discussed.

Authors: Mr GAEGAUF, Luca (University of Zurich); MEIERER, Markus (UZH)

Presenters: Mr GAEGAUF, Luca (University of Zurich); MEIERER, Markus (UZH)

Session Classification: Presentations