Understanding Fashion Product Sales Using Product Images and Convolutional Neural Networks

Daniela Mast
University of Tübingen
Stefan Mayer
University of Tübingen
Aseem Behl
University of Tübingen
Dominik Papies
University of Tübingen

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Abstract

Fashion products show a great variety in sales patterns and sales volumes. Explaining these differences poses challenges for retailers and academic research. At the same time, fashion products are inherently visual and conspicuous in their nature, and their visual appearance may be leveraged to explain consumer preferences and product sales. We propose a new automated way of using neural networks to extract theory-based visual characteristics from product images. These visual characteristics are a product's design typicality and a product's brand prominence. We identify typical fashion product sales patterns that are distinct in their shape and relate them to their underlying visual characteristics. Our framework allows researchers to study visual product characteristics in new ways, and the findings highlight the role of visual characteristics for consumer decision-making. As fashion products face regular new product introductions, our new approach generates important insights that retailers can use for their preseason stocking decisions. This decision is crucial as replenishment is difficult due to the short selling season of fashion products.

Keywords: *fashion products; machine learning; sales patterns*

Track: Methods, Modelling & Marketing Analytics