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The use of artificial intelligence in Fashion Tech: challenges and perspectives

Abstract. In the paper the present role of artificial intelligence in fashion industry is compared by the perspectives of artificial intelligence application in future. The range of artificial intelligence opportunities in the study varies from technical aspects, machine learning, data analysis to participation in the creation of the design, development and implementation of marketing strategy. By observing several cases the key trends were determined.

Keywords: fashion tech; artificial intelligence; big data; machine learning

According to recent study by BoF Team and McKinsey the main trend of 2018 is the high potential of the use of artificial intelligence (AI) in fashion industry [1]. The crucial factor is that AI will not be used solely as the additional resource to accomplish machine tasks. **Creativity, interaction with customers are the key areas**, where AI could be applied in the nearest future. The spheres of design development, marketing and communication strategy, which initially are observed like the work for humans, now change dramatically. With the use machine learning and big data fashion companies can easily predict the design, the features, the shapes, which will predict and overwhelm consumers' needs. It is evident that such prediction has a high level of fallibility; however the main patterns can be suggested by AI. The following trend is not so far as it seems: for example, Tommy Hilfiger brand announced a partnership with IBM and the Fashion Institute of Technology that uses IBM Research AI tools to decipher real-time fashion industry trends, ongoing customer sentiment around every Tommy Hilfiger product and runway image, and resurfacing themes in patterns, silhouettes, colors and styles. AI's functions in this partnership are to collect massive data, to analyze it and as a result to predict consumers preferences and future needs [2]. In this case AI becomes the integral player in the design process.

On the one hand, for fashion companies, which have already realized the high potential of AI in alternative fields, **the benefit may be significant**. However, this benefit can be taken by early adopters category according to Everett M. Rogers's Diffusion of innovations approach [3]. On the other hand, since this alternative use of AI in fashion will be uncovered and tested by the leading players of fashion industry, the overall landscape of fashion business will change significantly. This knowledge will become a disruptive trigger for the industry itself.

Since we realize that AI will be involved in more and business processes, we understand that this factor will induce a number of changes in the careers of the future in the world of fashion. The

proof is the presence of data scientist among the top fashion careers of the future. It is evident that advanced machine and deep learning will become integral part of fashion industry. According to McKinsey, a retailer using big data could increase its operating margin by more than 60 percent [4].

Moreover, AI technologies and developments are applied in fashion as a source of **connecting traditional offline retail with online retail**. Customer got acquainted to user-friendly interface, high usability of online shopping, hence they are looking for to see the following technologies and innovations in offline shopping centers. For example, AI fashion consultant, developed recently by Alibaba, called FashionAI, reshapes the overall fashion industry. The technology FashionAI is based on the combination of big data with deep learning. FashionAI has learned to recognize hundreds of millions of items of clothing as well as the tastes of designers and fashion influencers on Alibaba's shopping sites [5]. The technology is also customized for every store, generating dozens of outfit matches from the hundreds of items in inventory. FashionAI is a crucial step to "digitize the offline retail world" as Daniel Zhang, Alibaba's CEO, mentioned.

Another example, which demonstrates how AI blurs the lines between traditional offline and online shopping is "Store of the Future", realized by Farfetch [6]. This innovation integrates several disruptive technologies, among which there are automatic recognition of visitors by entrance systems and digital mirrors that allow customers to choose sizes, colors and directly check out.

Furthermore, the other perspective of use of AI in fashion industry is the ability **to transform the brand image dramatically**. For example, Nike brand launched Nike On Demand advertising campaign [7]. The aim of the campaign was to shift the consumer perception of Nike in Germany from "cool product brand" to "performance partner" to help athletes meet their performance goals by the usage of IoT data and AI assistance. By assessing the results and the feedbacks received from users we can state that the initial goal was achieved.

All things considered, I would like to outline that AI in fashion has already been widely used. However, the potential of the use is much higher. Some leading fashion companies has realized and even started to test the implementation of AI in a number of fields and departments. It seems that these companies will gain the huge benefit of being early adopters. The use of AI will not only influence main actors, but all the players regardless their use of innovations. Overall it will change the fashion industry: from technological aspect to the understanding of competitive advantages.

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Применение искусственного интеллекта в сфере Fashion Tech: вызовы и перспективы

Аннотация. В данном исследовании приводится сравнение текущего положения искусственного интеллекта в индустрии моды с перспективами его использования и внедрения. Перечень возможных сфер использования искусственного интеллекта в моде в работе включает технологические аспекты, технологии машинного обучения, анализ данных, а также участие искусственного интеллекта в разработке дизайна и маркетинговой стратегии продвижения товара. Рассмотрев несколько недавних кейсов, мы выделили ключевые тенденции.

Статья написана на английском языке.

Ключевые слова: fashion tech; искусственный интеллект; большие данные; машинное обучение

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