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### Transfer Learning in Counterfeit Goods Detection

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# Transfer Learning in Counterfeit Goods Detection

TREO Talk Paper

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## Abstract

Counterfeit goods, defined as products that are made to look like genuine or original items but are actually fake or imitation versions, constitute a global problem. OECD estimates that global trade in counterfeit goods has reached \$509 billion in 2016 and it continues to grow (European Union Intellectual Property Office, 2021).

E-commerce wherein businesses and consumers buy and sell goods via the internet has reached \$1 trillion in the United States in 2022 (United States Census, 2023). E-commerce platforms, e.g. Amazon.com, often offer access to third-party sellers. Estimates suggest that there are over 2 million third-party sellers on Amazon.com and third-party sellers now account for 60% of all unit sales on Amazon.com (Amazon Inc., 2023). Third-party sellers often engage in selling counterfeit goods in e-commerce platforms. Despite Amazon's efforts, the sale of counterfeit goods remains a challenge for the platform (Myers, 2023).

Consumer reviews offer a potential source of information regarding the sale of counterfeit products in e-commerce platforms (Wimmer & Yoon, 2017). We assess the predictive value of consumer reviews towards identification of counterfeit goods and we also examine the potential for transfer learning (Day & Khoshgoftaar, 2017), i.e. the use of classification models developed to identify instances of consumer reports of counterfeit goods in the context of one product to identify reviews signaling counterfeit goods in other product categories.

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