Image Correctness Application For Products On Marketplace

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Abstract - In today's digital era, Online marketplaces, which give customers access to a wide range of products, have emerged as the mainstay of retail in the current digital era. The quality and clarity of product photographs have become crucial in guaranteeing customer pleasure and trust as consumers depend more and more on them to make educated purchasing decisions. A ground-breaking solution created to address the issues with erroneous or deceptive product photos is the Image Correctness Application in Product Marketplace. This software uses cutting-edge technology like machine learning and computer vision to validate and improve the quality of product photos that vendors upload.

*Key Words***:** *Machine learning, cutting edge technology, computer vision, image.*

1. INTRODUCTION

Online marketplaces, which give customers access to a wide range of products, have emerged as the mainstay of retail in the current digital era. The importance of online marketplaces in the modern retail environment is emphasized in the opening statement. Thanks to the growth of digital platforms, customers may now easily access a wide variety of products through online marketplaces, giving them an Online marketplace, which give customers access to a wide range of products, have emerged as the mainstay of retail in the current digital era. The importance of online marketplaces in the modern retail environment is emphasized in the opening statement. Thanks to the growth of digital platforms, customers may now easily access a wide variety of products through online marketplaces, giving them an Online marketplace, which give customers access to a wide range of products, have emerged as the mainstay of retail in the current digital era. The importance of online marketplaces in the modern retail environment is emphasized in the opening statement.

The quality and clarity of product photographs have become crucial in guaranteeing customer pleasure and trust as consumers depend more and more on them to make educated purchasing decisions. This section emphasizes how consumers are becoming more and more dependent on visual cues, especially pictures of products, when making decisions. It is stressed that the precision and correctness of these photographs are essential for establishing and preserving client happiness and confidence. A groundbreaking solution created to address the issues with erroneous or deceptive product photos is the Image Correctness Application in Product Marketplace. This presents the Image Correctness Application, which is the main topic of discussion. It's billed as a game-changing solution that addresses the issues brought on by erroneous or deceptive product photos that are frequently seen in online marketplaces. The primary goal is to verify the accuracy of product images and enhance their quality.

2. LITERATURE SURVEY

Aakash Atul Alurkar [2019] examined the usage of string matching algorithms for identifying spam emails. The performance of six well-known string matching algorithms, including the Longest Common Subsequence (LCS),

Levenshtein Distance (LD), Jaro, Jaro-Winkler, Bi-gram

Roberto de Alencar Lotufo et.al.,2000The Image Foresting Transform (IFT) is a versatile tool for designing, implementing, and evaluating image processing operators based on connectivity principles. It constructs a minimum-cost path forest in a graph where nodes represent image pixels and arcs represent connections between pixels. The cost of a path in this graph is determined by a path-cost function, typically based on local image properties like colour, gradient, and pixel position. The roots of the forest originate from a set of seed pixels.

Kendal Normant et al., 2020. Introduction to Online Fashion Marketplaces: Start by introducing the rise in popularity of online fashion marketplaces where users can sell products by providing various information including titles, prices, descriptions, and pictures. Highlight the importance of accurately categorizing these products for efficient search and recommendation systems. Challenges in Categorization: Discuss the challenges associated with categorizing fashion products based on their titles. These challenges may include variations in terminology, multiple categories/subcategories, and the need for efficient

algorithms to handle large volumes of data. Preprocessing Techniques: Review popular preprocessing techniques used in analysing titles for categorization tasks

Sunita patil et al., 2014 E-commerce has fundamentally changed the way people shop, offering unprecedented convenience and access to a vast array of products. This transformation has been particularly impactful in the fashion industry, where digitalization has revolutionized traditional retail processes

K. Paswan et al., 2004 This study delves into the relationship between the accuracy of brand-country of origin (COO) knowledge and the COO image within a franchising context. It uncovers that a precise understanding of where brands originate positively influences perceptions of the COO image. Conversely, inaccurate brand-COO knowledge can lead to a muddled or even negative perception of the COO

3. OBJECTIVE AND METHODOLOGY

The objective of an Image Correctness Application on Products in Online Marketplaces is multifaceted, encompassing a variety of goals aimed at improving the overall experience for both sellers and buyers in the digital marketplace landscape. At its core, the primary objective is to ensure the accuracy and reliability of product images showcased on online platforms. In today's increasingly competitive e-commerce environment, where consumers heavily rely on visual representations to make purchasing decisions, the integrity of these images is paramount. Firstly, it aims to enhance customer trust. In a virtual setting where physical interaction with products is impossible, consumers depend heavily on product images to form perceptions and expectations. By ensuring that these images faithfully represent the actual products being sold, the application helps foster trust between sellers and buyers. When customers can confidently rely on the accuracy of product images, they are more likely to make purchases, leading to increased satisfaction and loyalty.

Secondly, the application endeavors to improve the user experience. Online shopping should be convenient, intuitive, and enjoyable. Clear, high-quality images play a crucial role in facilitating this experience by providing customers with detailed insights into the products they are considering.

Furthermore, the application seeks to drive sales growth. Visual appeal plays a significant role in influencing purchasing decisions. When products are showcased in an accurate and visually appealing manner, customers are more likely to be enticed to make a purchase. By presenting products in their best light and ensuring that images accurately depict their features and attributes, the

application enhances the likelihood of converting browsing customers into paying ones. This, in turn, leads to increased sales and revenue for sellers and online marketplaces alike.

4.   CONTRIBUTION

MEMBER 1: JEF JEEVA NILA A

- Analyze about the previous way of prediction and find the difficulties faced by them.   Analyses about different algorithms and find the accuracy in exist projects. Researching which algorithm suites in our project and study about the different algorithm approach its advantage and disadvantage, exploring different feature is suitable for us Data collection is done.
- Datasets of different type of image are collected finalize the algorithm to be use in our project making all report work done Identify and check the code and analysis of the model performance

MEMBER 2: AJAYGANDHI V

- Collect source code, first rectify the errors debug the code completely and started to run them analyzing them which algorithm suites our code and make changes according to it .We combine different type of algorithm to increase accuracy. Split our data for testing and training run multiple time by involving different types of algorithms and making best of it. and checking whether it gives correct output say whether it has undergone any changes or not. making ready with ppt work done. Validation is done. finally, deployment is done

5. FLOW DIAGRAM
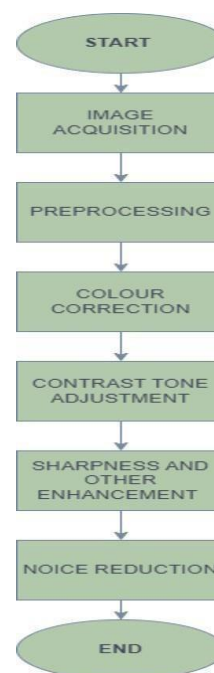
EXPLANATION OF FLOW DIAGRAM:

Image analysis algorithms are pivotal in identifying various issues within product images, including distortion, color inaccuracies, missing features, or discrepancies with product descriptions. These algorithms leverage computer vision techniques to analyze pixel-level information, allowing them to detect anomalies and inconsistencies. For instance, algorithms can identify distortions by comparing the aspect ratios of objects in the image, or they can detect color inaccuracies by analyzing color histograms. Furthermore, advanced algorithms can utilize edge detection techniques to identify missing features or discrepancies between the image and product descriptions.

Quality assurance checks involve implementing automated checks to verify various aspects of image quality, including resolution, aspect ratio, and overall visual quality. These checks ensure that product images meet predefined standards for clarity, consistency, and aesthetic appeal. For instance, quality assurance algorithms can analyze image resolution to ensure that images meet minimum resolution requirements for optimal viewing. Likewise, aspect ratio checks can verify that images are correctly proportioned and do not appear stretched or distorted.

Natural Language Processing (NLP) techniques play a crucial role in analyzing product descriptions and specifications to detect discrepancies between textual information and image content. NLP algorithms can process and analyze natural language text, enabling online marketplaces to extract key information from product descriptions and compare it with visual content. For example, NLP models can perform semantic analysis to identify matching or conflicting information between product descriptions and image labels. Additionally, sentiment analysis techniques can assess the descriptive language used in product listings to gauge customer perception and sentiment. By leveraging NLP, online marketplaces can ensure consistency and coherence between textual and visual representations of products, thereby enhancing customer trust and reducing the likelihood of disputes or returns.

Contrast tone adjustment enhances the visual appeal of product images by improving the contrast between light and dark areas. Techniques such as histogram stretching, contrast stretching, and tone mapping can be used to adjust the dynamic range of pixel values. Adaptive contrast enhancement algorithms can selectively enhance contrast in specific regions of the image while preserving overall image quality.

Colour correction is essential for ensuring that product colors are accurately represented in images across different devices and lighting conditions. Techniques such as white balance adjustment, gamma correction, and histogram equalization can be applied to ensure consistent colour reproduction. Automated algorithms can analyses image histograms and adjust colour channels accordingly to achieve a more balanced colour distribution.

The Shopify API allows developers to access and manipulate data from Shopify's e-commerce platform, including products, orders, customers, and storefronts. It provides a comprehensive set of endpoints for interacting with Shopify's resources programmatically. In the context of image correctness applications, the Shopify API can be used to access product data and image listings from Shopify's platform for analysis and validation purposes Crowdsourcing platforms provide scalability, flexibility, and cost-effectiveness for gathering human judgments on large volumes of product images. They allow requesters to specify task requirements, set compensation rates, and monitor q.uality of work through built-in review tapping into the collective wisdom of crowds, these platforms enable businesses to obtain diverse perspectives and ensure

Image Authentication: The application utilizes advanced algorithms to authenticate the legitimacy of product images. It checks for signs of manipulation, ensuring that the images accurately represent the physical attributes and features of the product.

Quality Enhancement: Image Correctness Application goes beyond mere authentication; it also enhances image quality. This involves optimizing resolution, adjusting lighting, and refining colors to present customers with the most accurate and appealing representation of the Content

Tagging: Leveraging machine learning, the application intelligently tags product images with relevant information. This not only aids in search engine optimization but also ensures that customers receive comprehensive details about the product, fostering a transparent product marketplaces.

6. RESULT AND DISCUSSION

6.1 OpenCV:

OpenCV (Open Source Computer Vision Library) is a popular open- source computer vision and machine learning software library. It offers a wide range of functions for image processing, manipulation, and analysis. OpenCV can be utilized for tasks such as resizing images, adjusting color balances, detecting edges, and more. In the context of image correctness applications, OpenCV can be used for preprocessing product images, enhancing their quality, and extracting relevant features.

6.2 TensorFlow

TensorFlow is an open-source machine learning framework developed by Google. It provides a comprehensive ecosystem of tools, libraries, and resources for building and deploying machine learning models. TensorFlow offers highlevel APIs for building neural networks and other machine learning models. In the context of image correctness applications, TensorFlow can be used for training deep learning models to detect correctness issues in product images, such as image distortions, color inaccuracies, or missing features.

6.3 Benefits of image correctness application: the accuracy and correctness of product images in online marketplaces.

- Enhanced Customer Confidence: By providing accurate and high-quality product images, the application boosts customer confidence, leading to increased trust in the online marketplace.

- Reduced returns and disputes**:** Accurate representation reduces the likelihood of customers receiving products that do not meet their expectations, resulting in fewer returns and disputes

- Improved Seller Credibility: Seller's benefit from the application by showcasing their products more accurately, ultimately enhancing their credibility and reputation on the platform.

- Time and Cost Savings: Automating the image correction process saves both sellers and platform administrators valuable time, allowing them to focus on core business activities.
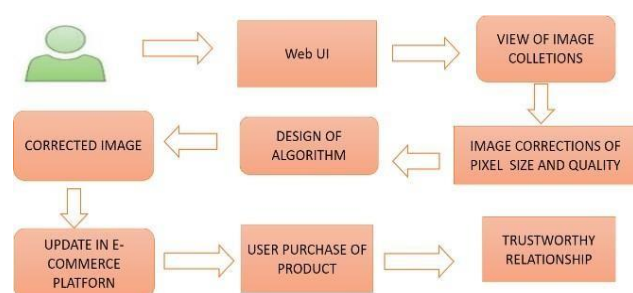
Ethical considerations play a crucial role in the development and deployment of the image correctness application, particularly concerning user privacy, consent, and fairness. To address privacy concerns, the application will adhere to strict data protection regulations and best practices, ensuring that user data is securely stored and processed. Additionally, users will be provided with clear information about how their data is used and given the opportunity to opt-out of image analysis processes if desired. Consent will also be a priority, with users required to explicitly consent to image analysis and verification processes before uploading images. Transparent communication and user- friendly interfaces will help ensure that users understand how their data is used and can make informed decisions. The image correctness application offers several benefits to both marketplace operators and users. For marketplace operators, the application can help enhance the integrity of their platforms by ensuring the accuracy and authenticity of product images. This can lead to increased customer trust and satisfaction, higher conversion rates, and reduced instances of returns and disputes. For users, the application provides assurance that the products they see online accurately reflect their appearance and quality, reducing the risk of disappointment or dissatisfaction. This can lead to improved customer experiences, repeat purchases, and positive reviews, benefiting both sellers and marketplace operators. Overall, the image correctness application contributes to a more transparent and trustworthy online marketplace ecosystem, fostering a positive environment for commerce and consumer engagement.

7. CONCLUSION

The head for this Project as of now e commerce is emerging in modern world So it is important to make a trustable relationship between Seller and buyer, the image we See in the Website must be Same when they receive to us, so This app will make them to do so. High quality Image and Size of image Play a important role in the marketplace we are making it the quality of the image is done incorporating PSNR Technology .Handling of the image is done by CNN algorithm colour correction of image is done with LAB algorithm .

Finally we make our website

- Affordable

- Cost effective

- Realistic checking

8. SUGGESTIONS FOR FUTURE WORK

Investing in the development and implementation of advanced image recognition technologies can help automate the process of verifying image correctness. Machine learning algorithms can be trained to detect discrepancies between product images and their descriptions, flagging potentially misleading or inaccurate listings for manual review. Marketplace platforms canexplore the integration of enhanced image verification processes, such as crowdsourced validation or third-party

image auditing services. Leveraging the collective intelligence of users or enlisting specialized agencies to verify image correctness can help improve the accuracy and reliability of product listings.

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