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Visual Content Usage for Marketing on Demography

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This study investigates how visual content can be used to predict consumer demographic attributes within the Sri Lankan apparel industry by integrating clothing image features with participant reported demographic variables. The dataset consisted of 678 clothing images and demographic responses from 113 participants, which were transformed into a multi label learning structure. The predictor variables comprised visual features extracted from the clothing images, while the response variables included seven demographic attributes: age group, gender, race, religion, marital status, district, and preferred price range. After preprocessing categorical variables using one-hot encoding and resizing and normalizing all images, the dataset was divided into training (90%) and testing (10%) subsets. A Convolutional Neural Network (CNN) was developed to model the relationship between clothing image characteristics and demographic labels. The final model achieved approximately 60% testing accuracy, demonstrating the feasibility of predicting demographic segments based solely on visual clothing preferences. The study's findings highlight the significance of linking visual aesthetics with demographic patterns, offering practical value for personalized product recommendations, targeted marketing, and data-driven decision making in the Sri Lankan fashion industry.

Keywords: Convolutional Neural Network, Multi-Label Classification, Visual Content, Demographic Factors.