

Automated Footwear Classification

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1. Problem Statement

The intent of footwear classification is to automate identification of footwear types from images, enabling efficient visual understanding for downstream applications. Footwear type classification from images is an important computer vision problem for applications in e-commerce, visual search, and product categorization. However, the task is challenging due to large visual variations of the same footwear categories, and diverse imaging conditions present.

The objective of this project is to evaluate the performance and scalability of various convolutional neural networks (CNN) architectures for footwear images classification across datasets of different complexity. We aim for the results to provide insights into the relationship between the dataset scale and model capacity, such as its strength and limitations of various CNNs when applied to the real-world footwear classification task.

2. Dataset Selection

Dataset	Class	Imag/Class	Resolution
name1	0	0	0
name2	0	0	0
name3	0	0	0

Table 1. insert text

3. Methodology

3.1. Pipeline

Our pipeline focuses comparing zero shot baseline models to those utilizing transfer learning .Three architecture will be implemented: ResNet-50[4], MobileNetV2[5], and VGG-16[6]. All three models will be trained from scratch accross three different dataset configurations (eg.boots, sandals, and shoes) with a total of nine models. These models will be evaluated against two transfer learning versions (ResNet-50 and MobileNetV2) to assess efficiency pre-trained weigths in the retail imagery domain.

3.2. Data Processing and Training

4. Gantt Chart

Figure 1. Gantt Chart for Project Timeline

5. Bibliography

References