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Proxy Methods in Image Recognition

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This paper presents a comprehensive comparison of several state-of-the-art proxy loss methods for retail product recognition, focusing on accuracy, computational efficiency, embedding quality, and convergence behaviour. An extensive evaluation is performed on the Stanford Online Products benchmark dataset, which contains over 120,000 images covering 22,634 distinct product categories. The analysis reveals a trade-off between proxy-based and non-proxy-based methods, highlighting the conditions under which each approach may be more advantageous. Attention is also given to identifying optimal model parameters for individual proxy methods, offering insights into their most effective configurations. The findings underscore the importance of balancing computational efficiency and embedding quality when deploying proxy loss methods for large-scale product recognition tasks.

Authors: BORKOWSKA, Barbara; MACIĄG, Marcin

Presenters: BORKOWSKA, Barbara; MACIĄG, Marcin

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