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One-shot learning from prototype SKU images.

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The paper discusses the significance of one-shot learning from prototype SKU images for efficient product recognition in various retail and inventory management sectors. Traditional methods require large supervised datasets for training deep neural networks, which can be costly and impractical. One-shot learning techniques address this issue by enabling classification from a single prototype image per product class, reducing data annotation efforts. The variational prototyping-encoder (VPE) is introduced as a novel deep neural network tailored for one-shot classification. By utilizing a support set of prototype SKU images, VPE learns to classify query images while capturing image similarity and prototypical concepts. Unlike metric learning-based approaches, VPE pre-learns image translation from real-world object images to prototype images as a meta-task, facilitating efficient one-shot classification with minimal supervision. The result of the research indicated the potential for applicability of VPE in reducing the need for large datasets and accurately classifying query images into their respective categories, offering a practical solution for product classification tasks.
Index Terms: one-shot learning, autoencoders, VPE, prototyping.

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