Superpixel Anything: A general Object-based framework for accurate yet regular superpixel segmentation

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Superpixels are widely used in computer vision to simplify image representation and reduce computational complexity. While traditional methods rely on low-level features, deep learning-based approaches leverage high-level features but also tend to sacrifice regularity of superpixels to capture complex objects, leading to accurate but less interpretable segmentations.

In this work, we introduce SPAM (SuperPixel Anything Model), a versatile framework for segmenting images into accurate yet regular superpixels. We train a model to extract image features for superpixel generation, and at inference, we leverage a large-scale pretrained model for semantic-agnostic segmentation to ensure that superpixels align with object masks. SPAM can handle any prior high-level segmentation, resolving uncertainty regions, and is able to interactively focus on specific objects.

Comprehensive experiments demonstrate that SPAM qualitatively and quantitatively outperforms state-of-the-art methods on segmentation tasks, making it a valuable and robust tool for various applications. Code and pre-trained models are available here: this https URL.