

HERNet: A novel network for salient object detection in computer vision

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The architecture of HERNet. Credit: XIOPM

Student Song Dawei from the Xi'an Institute of Optics and Precision Mechanics (XIOPM) of the Chinese Academy of Sciences, together with his team members, recently proposed a hierarchical edge refinement network (HERNet) for accurate saliency object detection. Their up-to-date results were published in *IEEE Transactions on Image Processing*.

Given an image, the goal of salient [object](#) detection is to locate interesting targets that look quite different from their surroundings.

Compared with most existing convolutional-neural-network methods which would always blur the edges of salient objects, the HERNet achieves accurate salient targets detection.

Accurate saliency object detection is an important task of computer vision. In view of this, the researchers proposed HERNet. The whole structure was disassembled into two significant modules, saliency prediction network and edge preserving network. And the model was trained by three necessary supervisions, structure [supervision](#), hybrid supervision, and edge supervision.

They empirically showed edge blurring of prediction map was a challenging task in salient [target](#) detection, and the proposed HERNet can effectively mitigate it.

Comprehensive experimental results demonstrate the superiority of HERNet under different evaluation metrics. In the future, the proposed method will inspire the designing effective architecture of accurate salient target detection.

More information: Dawei Song et al, Hierarchical Edge Refinement Network for Saliency Detection, *IEEE Transactions on Image Processing* (2021). [DOI: 10.1109/TIP.2021.3106798](https://doi.org/10.1109/TIP.2021.3106798)

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