

Home

Benchmark SoA

Explore SoA

Code & Datasets

Contact

Convolutional Oriented Boundaries

State-of-the-Art Contour Detection and Hierarchical Segmentation



Publications

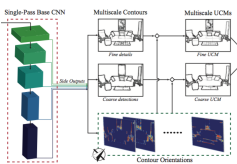


[K.K. Maninis](#), [J. Pont-Tuset](#), [P. Arbeláez](#), and [L. Van Gool](#)

Convolutional Oriented Boundaries: From Image Segmentation to High-Level Tasks

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2017.

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[K.K. Maninis](#), [J. Pont-Tuset](#), [P. Arbeláez](#), and [L. Van Gool](#)

Convolutional Oriented Boundaries

European Conference on Computer Vision (ECCV) 2016

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Abstract

This paper presents Convolutional Oriented Boundaries (COB), which produces multiscale oriented contours and region hierarchies starting from generic image classification CNNs. COB is computationally efficient, because it requires a single CNN forward pass for contour detection and uses a novel sparse boundary representation for hierarchical segmentation; it gives a significant leap in performance over the state-of-the-art, and it generalizes very well to unseen categories and datasets. We perform extensive experiments on BSDS, PASCAL Context, PASCAL Segmentation, and MS-COCO, showing that COB provides state-of-the-art contours, region hierarchies, and object proposals.

Demo of the Detected Orientations, UCM, and Object Proposal



Top row: Contour response at different orientations. Bottom row: Hierarchical segmentation (UCM) and best segmented object proposal.

Benchmark State of the Art

Display the quantitative evaluation of the current State-of-the-Art techniques in PASCAL Context.

Explore State of the Art

Qualitatively compare current State-of-the-Art techniques in PASCAL Context.

Code & Pre-Computed Results

Download the COB code and pre-computed COB segmentations and proposals in a variety of popular datasets: BSDS500, MS-COCO, PASCAL, etc.