

- TITLE:** SCOPS: Self-Supervised Co-Part Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Hung_SCOPS_Self-Supervised_Co-Part_Segmentation_CVPR_2019_paper.html
- AUTHORS:** Wei-Chih Hung, Varun Jampani, Sifei Liu, Pavlo Molchanov, Ming-Hsuan Yang, Jan Kautz
- HIGHLIGHT:** We propose a self-supervised deep learning approach for part segmentation, where we devise several loss functions that aids in predicting part segments that are geometrically concentrated, robust to object variations and are also semantically consistent across different object instances.
- TITLE:** Unsupervised Moving Object Detection via Contextual Information Separation
http://openaccess.thecvf.com/content_CVPR_2019/html/Yang_Unsupervised_Moving_Object_Detection_via_Contextual_Information_Separation_CVPR_2019_paper.html
- AUTHORS:** Yanchao Yang, Antonio Loquercio, Davide Scaramuzza, Stefano Soatto
- HIGHLIGHT:** We propose an adversarial contextual model for detecting moving objects in images.
- TITLE:** Pose2Seg: Detection Free Human Instance Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Zhang_Pose2Seg_Detection_Free_Human_Instance_Segmentation_CVPR_2019_paper.html
- AUTHORS:** Song-Hai Zhang, Ruilong Li, Xin Dong, Paul Rosin, Zixi Cai, Xi Han, Dingcheng Yang, Haozhi Huang, Shi-Min Hu
- HIGHLIGHT:** In this paper, we present a brand new pose-based instance segmentation framework for humans which separates instances based on human pose, rather than proposal region detection.
- TITLE:** Learning-Based Sampling for Natural Image Matting
http://openaccess.thecvf.com/content_CVPR_2019/html/Tang_Learning-Based_Sampling_for_Natural_Image_Matting_CVPR_2019_paper.html
- AUTHORS:** Jingwei Tang, Yagiz Aksoy, Cengiz Oztireli, Markus Gross, Tunc Ozan Aydin
- HIGHLIGHT:** In this paper, we propose the estimation of the layer colors through the use of deep neural networks prior to the opacity estimation.
- TITLE:** Learning Unsupervised Video Object Segmentation Through Visual Attention
http://openaccess.thecvf.com/content_CVPR_2019/html/Wang_Learning_Unsupervised_Video_Object_Segmentation_Through_Visual_Attention_CVPR_2019_paper.html
- AUTHORS:** Wenguan Wang, Hongmei Song, Shuyang Zhao, Jianbing Shen, Sanyuan Zhao, Steven C. H. Hoi, Haibin Ling
- HIGHLIGHT:** This paper conducts a systematic study on the role of visual attention in Unsupervised Video Object Segmentation (UVOS) tasks.
- TITLE:** 4D Spatio-Temporal ConvNets: Minkowski Convolutional Neural Networks
http://openaccess.thecvf.com/content_CVPR_2019/html/Choy_4D_Spatio-Temporal_ConvNets_Minkowski_Convolutional_Neural_Networks_CVPR_2019_paper.html
- AUTHORS:** Christopher Choy, JunYoung Gwak, Silvio Savarese
- HIGHLIGHT:** In this work, we propose 4-dimensional convolutional neural networks for spatio-temporal perception that can directly process such 3D-videos using high-dimensional convolutions.
- TITLE:** Pyramid Feature Attention Network for Saliency Detection
http://openaccess.thecvf.com/content_CVPR_2019/html/Zhao_Pyramid_Feature_Attention_Network_for_Saliency_Detection_CVPR_2019_paper.html
- AUTHORS:** Ting Zhao, Xiangqian Wu
- HIGHLIGHT:** Recently, CNNs are the most widely used and powerful techniques for saliency detection, in which feature maps from different layers are always integrated without distinction.
- TITLE:** Co-Saliency Detection via Mask-Guided Fully Convolutional Networks With Multi-Scale Label Smoothing
http://openaccess.thecvf.com/content_CVPR_2019/html/Zhang_Co-Saliency_Detection_via_Mask-Guided_Fully_Convolutional_Networks_With_Multi-Scale_Label_Smoothing_CVPR_2019_paper.html
- AUTHORS:** Kaihua Zhang, Tengpeng Li, Bo Liu, Qingshan Liu
- HIGHLIGHT:** In this paper, we propose a hierarchical image co-saliency detection framework as a coarse to fine strategy to capture this pattern.
- TITLE:** SAIL-VOS: Semantic Amodal Instance Level Video Object Segmentation - A Synthetic Dataset and Baselines
http://openaccess.thecvf.com/content_CVPR_2019/html/Hu_SAIL-VOS_Semantic_Amodal_Instance_Level_Video_Object_Segmentation_-_A_CVPR_2019_paper.html
- AUTHORS:** Yuan-Ting Hu, Hong-Shuo Chen, Kexin Hui, Jia-Bin Huang, Alexander G. Schwing

HIGHLIGHT: We introduce SAIL-VOS (Semantic Amodal Instance Level Video Object Segmentation), a new dataset aiming to stimulate semantic amodal segmentation research.

TITLE: Learning Instance Activation Maps for Weakly Supervised Instance Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Zhu_Learning_Instance_Activation_Maps_for_Weakly_Supervised_Instance_Segmentation_CVPR_2019_paper.html

AUTHORS: Yi Zhu, Yanzhao Zhou, Huijuan Xu, Qixiang Ye, David Doermann, Jianbin Jiao

HIGHLIGHT: In this work, we tackle this challenging problem by using a novel instance extent filling approach.

TITLE: Decoders Matter for Semantic Segmentation: Data-Dependent Decoding Enables Flexible Feature Aggregation
http://openaccess.thecvf.com/content_CVPR_2019/html/Tian_Decoders_Matter_for_Semantic_Segmentation_Data-Dependent_Decoding_Enables_Flexible_Feature_CVPR_2019_paper.html

AUTHORS: Zhi Tian, Tong He, Chunhua Shen, Youliang Yan

HIGHLIGHT: In this work, we propose a data-dependent upsampling (DUpsampling) to replace bilinear, which takes advantages of the redundancy in the label space of semantic segmentation and is able to recover the pixel-wise prediction from low-resolution outputs of CNNs.

TITLE: Box-Driven Class-Wise Region Masking and Filling Rate Guided Loss for Weakly Supervised Semantic Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Song_Box-Driven_Class-Wise_Region_Masking_and_Filling_Rate_Guided_Loss_for_CVPR_2019_paper.html

AUTHORS: Chunfeng Song, Yan Huang, Wanli Ouyang, Liang Wang

HIGHLIGHT: We evaluate the proposed method on the challenging PASCAL VOC 2012 benchmark and compare with other methods.

TITLE: Dual Attention Network for Scene Segmentation

http://openaccess.thecvf.com/content_CVPR_2019/html/Fu_Dual_Attention_Network_for_Scene_Segmentation_CVPR_2019_paper.html

AUTHORS: Jun Fu, Jing Liu, Haijie Tian, Yong Li, Yongjun Bao, Zhiwei Fang, Hanqing Lu

HIGHLIGHT: In this paper, we address the scene segmentation task by capturing rich contextual dependencies based on the self-attention mechanism.

TITLE: KE-GAN: Knowledge Embedded Generative Adversarial Networks for Semi-Supervised Scene Parsing

http://openaccess.thecvf.com/content_CVPR_2019/html/Qi_KE-GAN_Knowledge_Embedded_Generative_Adversarial_Networks_for_Semi-Supervised_Scene_Parsing_CVPR_2019_paper.html

AUTHORS: Mengshi Qi, Yunhong Wang, Jie Qin, Annan Li

HIGHLIGHT: In this paper, we propose a novel Knowledge Embedded Generative Adversarial Networks, dubbed as KE-GAN, to tackle the challenging problem in a semi-supervised fashion.

TITLE: Fast User-Guided Video Object Segmentation by Interaction-And-Propagation Networks

http://openaccess.thecvf.com/content_CVPR_2019/html/Oh_Fast_User-Guided_Video_Object_Segmentation_by_Interaction-And-Propagation_Networks_CVPR_2019_paper.html

AUTHORS: Seoung Wug Oh, Joon-Young Lee, Ning Xu, Seon Joo Kim

HIGHLIGHT: We present a deep learning method for the interactive video object segmentation.

TITLE: Fast Interactive Object Annotation With Curve-GCN

http://openaccess.thecvf.com/content_CVPR_2019/html/Ling_Fast_Interactive_Object_Annotation_With_Curve-GCN_CVPR_2019_paper.html

AUTHORS: Huan Ling, Jun Gao, Amlan Kar, Wenzheng Chen, Sanja Fidler

HIGHLIGHT: We propose a new framework that alleviates the sequential nature of Polygon-RNN, by predicting all vertices simultaneously using a Graph Convolutional Network (GCN).

TITLE: FickleNet: Weakly and Semi-Supervised Semantic Image Segmentation Using Stochastic Inference

http://openaccess.thecvf.com/content_CVPR_2019/html/Lee_FickleNet_Weakly_and_Semi-Supervised_Semantic_Image_Segmentation_Using_Stochastic_Inference_CVPR_2019_paper.html

AUTHORS: Jungbeom Lee, Eunji Kim, Sungmin Lee, Jangho Lee, Sungroh Yoon

HIGHLIGHT: Most methods based on image-level annotations use localization maps obtained from the classifier, but these only focus on the small discriminative parts of objects and do not capture precise boundaries.

TITLE: RVOS: End-To-End Recurrent Network for Video Object Segmentation

http://openaccess.thecvf.com/content_CVPR_2019/html/Ventura_RVOS_End-To-End_Recurrent_Network_for_Video_Object_Segmentation_CVPR_2019_paper.html

AUTHORS: Carles Ventura, Miriam Bellver, Andreu Girbau, Amaia Salvador, Ferran Marques, Xavier Giro-i-Nieto
HIGHLIGHT: In our work, we propose a Recurrent network for multiple object Video Object Segmentation (RVOS) that is fully end-to-end trainable.

TITLE: DeepFlux for Skeletons in the Wild
http://openaccess.thecvf.com/content_CVPR_2019/html/Wang_DeepFlux_for_Skeletons_in_the_Wild_CVPR_2019_paper.html
AUTHORS: Yukang Wang, Yongchao Xu, Stavros Tsogkas, Xiang Bai, Sven Dickinson, Kaleem Siddiqi
HIGHLIGHT: In the present article, we depart from this strategy by training a CNN to predict a two-dimensional vector field, which maps each scene point to a candidate skeleton pixel, in the spirit of flux-based skeletonization algorithms.

TITLE: Interactive Image Segmentation via Backpropagating Refinement Scheme
http://openaccess.thecvf.com/content_CVPR_2019/html/Jang_Interactive_Image_Segmentation_via_Backpropagating_Refinement_Scheme_CVPR_2019_paper.html
AUTHORS: Won-Dong Jang, Chang-Su Kim
HIGHLIGHT: An interactive image segmentation algorithm, which accepts user-annotations about a target object and the background, is proposed in this work.

TITLE: Scene Parsing via Integrated Classification Model and Variance-Based Regularization
http://openaccess.thecvf.com/content_CVPR_2019/html/Shi_Scene_Parsing_via_Integrated_Classification_Model_and_Variance-Based_Regularization_CVPR_2019_paper.html
AUTHORS: Hengcan Shi, Hongliang Li, Qingbo Wu, Zichen Song
HIGHLIGHT: In this paper, we propose an integrated classification model and a variance-based regularization to achieve more accurate classifications.

TITLE: A-CNN: Annularly Convolutional Neural Networks on Point Clouds
http://openaccess.thecvf.com/content_CVPR_2019/html/Komarichev_A-CNN_Annularly_Convolutional_Neural_Networks_on_Point_Clouds_CVPR_2019_paper.html
AUTHORS: Artem Komarichev, Zichun Zhong, Jing Hua
HIGHLIGHT: This paper presents a new method to define and compute convolution directly on 3D point clouds by the proposed annular convolution.

TITLE: DARNet: Deep Active Ray Network for Building Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Cheng_DARNet_Deep_Active_Ray_Network_for_Building_Segmentation_CVPR_2019_paper.html
AUTHORS: Dominic Cheng, Renjie Liao, Sanja Fidler, Raquel Urtasun
HIGHLIGHT: In this paper, we propose a Deep Active Ray Network (DARNet) for automatic building segmentation.

TITLE: Point Cloud Oversegmentation With Graph-Structured Deep Metric Learning
http://openaccess.thecvf.com/content_CVPR_2019/html/Landrieu_Point_Cloud_Oversegmentation_With_Graph-Structured_Deep_Metric_Learning_CVPR_2019_paper.html
AUTHORS: Loïc Landrieu, Mohamed Boussaha
HIGHLIGHT: We propose a new supervised learning framework for oversegmenting 3D point clouds into superpoints.

TITLE: Graphonomy: Universal Human Parsing via Graph Transfer Learning
http://openaccess.thecvf.com/content_CVPR_2019/html/Gong_Graphonomy_Universal_Human_Parsing_via_Graph_Transfer_Learning_CVPR_2019_paper.html
AUTHORS: Ke Gong, Yiming Gao, Xiaodan Liang, Xiaohui Shen, Meng Wang, Liang Lin
HIGHLIGHT: In this paper, we aim to learn a single universal human parsing model that can tackle all kinds of human parsing needs by unifying label annotations from different domains or at various levels of granularity.

TITLE: Fitting Multiple Heterogeneous Models by Multi-Class Cascaded T-Linkage
http://openaccess.thecvf.com/content_CVPR_2019/html/Magri_Fitting_Multiple_Heterogeneous_Models_by_Multi-Class_Cascaded_T-Linkage_CVPR_2019_paper.html
AUTHORS: Luca Magri, Andrea Fusiello
HIGHLIGHT: This paper addresses the problem of multiple models fitting in the general context where the sought structures can be described by a mixture of heterogeneous parametric models drawn from different classes.

TITLE: A Late Fusion CNN for Digital Matting
http://openaccess.thecvf.com/content_CVPR_2019/html/Zhang_A_Late_Fusion_CNN_for_Digital_Matting_CVPR_2019_paper.html
AUTHORS: Yunke Zhang, Lixue Gong, Lubin Fan, Peiran Ren, Qixing Huang, Hujun Bao, Weiwei Xu

HIGHLIGHT: This paper studies the structure of a deep convolutional neural network to predict the foreground alpha matte by taking a single RGB image as input.

TITLE: BASNet: Boundary-Aware Saliency Object Detection
http://openaccess.thecvf.com/content_CVPR_2019/html/Qin_BASNet_Boundary-Aware_Saliency_Object_Detection_CVPR_2019_paper.html

AUTHORS: Xuebin Qin, Zichen Zhang, Chenyang Huang, Chao Gao, Masood Dehghan, Martin Jagersand
HIGHLIGHT: In this paper, we propose a predict-refine architecture, BASNet, and a new hybrid loss for Boundary-Aware Saliency object detection.

TITLE: ZigZagNet: Fusing Top-Down and Bottom-Up Context for Object Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Lin_ZigZagNet_Fusing_Top-Down_and_Bottom-Up_Context_for_Object_Segmentation_CVPR_2019_paper.html

AUTHORS: Di Lin, Dingguo Shen, Siting Shen, Yuanfeng Ji, Dani Lischinski, Daniel Cohen-Or, Hui Huang
HIGHLIGHT: Recent works construct the multi-scale context by aggregating convolutional feature maps extracted by different levels of a deep neural network.

TITLE: Object Instance Annotation With Deep Extreme Level Set Evolution
http://openaccess.thecvf.com/content_CVPR_2019/html/Wang_Object_Instance_Annotation_With_Deep_Extreme_Level_Set_Evolution_CVPR_2019_paper.html

AUTHORS: Zian Wang, David Acuna, Huan Ling, Amlan Kar, Sanja Fidler
HIGHLIGHT: In this paper, we tackle the task of interactive object segmentation.

TITLE: Leveraging Crowdsourced GPS Data for Road Extraction From Aerial Imagery
http://openaccess.thecvf.com/content_CVPR_2019/html/Sun_Leveraging_Crowdsourced_GPS_Data_for_Road_Extraction_From_Aerial_Imagery_CVPR_2019_paper.html

AUTHORS: Tao Sun, Zonglin Di, Pengyu Che, Chun Liu, Yin Wang
HIGHLIGHT: In this paper, we propose to leverage crowdsourced GPS data to improve and support road extraction from aerial imagery.

TITLE: Adaptive Pyramid Context Network for Semantic Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/He_Adaptive_Pyramid_Context_Network_for_Semantic_Segmentation_CVPR_2019_paper.html

AUTHORS: Junjun He, Zhongying Deng, Lei Zhou, Yali Wang, Yu Qiao
HIGHLIGHT: Based on this analysis, this paper proposes Adaptive Pyramid Context Network (APCNet) for semantic segmentation.

TITLE: UPSNet: A Unified Panoptic Segmentation Network
http://openaccess.thecvf.com/content_CVPR_2019/html/Xiong_UPSNet_A_Unified_Panoptic_Segmentation_Network_CVPR_2019_paper.html

AUTHORS: Yuwen Xiong, Renjie Liao, Hengshuang Zhao, Rui Hu, Min Bai, Ersin Yumer, Raquel Urtasun
HIGHLIGHT: In this paper, we propose a unified panoptic segmentation network (UPSNet) for tackling the newly proposed panoptic segmentation task.

TITLE: JSIS3D: Joint Semantic-Instance Segmentation of 3D Point Clouds With Multi-Task Pointwise Networks and Multi-Value Conditional Random Fields

http://openaccess.thecvf.com/content_CVPR_2019/html/Pham_JSIS3D_Joint_Semantic-Instance_Segmentation_of_3D_Point_Clouds_With_Multi-Task_CVPR_2019_paper.html

AUTHORS: Quang-Hieu Pham, Thanh Nguyen, Binh-Son Hua, Gemma Roig, Sai-Kit Yeung
HIGHLIGHT: In this work, we jointly address the problems of semantic and instance segmentation of 3D point clouds.

TITLE: Instance Segmentation by Jointly Optimizing Spatial Embeddings and Clustering Bandwidth
http://openaccess.thecvf.com/content_CVPR_2019/html/Neven_Instance_Segmentation_by_Jointly_Optimizing_Spatial_Embeddings_and_Clustering_Bandwidth_CVPR_2019_paper.html

AUTHORS: Davy Neven, Bert De Brabandere, Marc Proesmans, Luc Van Gool
HIGHLIGHT: In this work we propose a new clustering loss function for proposal-free instance segmentation.

TITLE: DeepCO3: Deep Instance Co-Segmentation by Co-Peak Search and Co-Saliency Detection
http://openaccess.thecvf.com/content_CVPR_2019/html/Hsu_DeepCO3_Deep_Instance_Co-Segmentation_by_Co-Peak_Search_and_Co-Saliency_Detection_CVPR_2019_paper.html

AUTHORS: Kuang-Jui Hsu, Yen-Yu Lin, Yung-Yu Chuang

HIGHLIGHT: In this paper, we address a new task called instance co-segmentation.

TITLE: Improving Semantic Segmentation via Video Propagation and Label Relaxation
http://openaccess.thecvf.com/content_CVPR_2019/html/Zhu_Improving_Semantic_Segmentation_via_Video_Propagation_and_Label_Relaxation_CVPR_2019_paper.html

AUTHORS: Yi Zhu, Karan Sapra, Fitsum A. Reda, Kevin J. Shih, Shawn Newsam, Andrew Tao, Bryan Catanzaro
HIGHLIGHT: In this paper, we present a video prediction-based methodology to scale up training sets by synthesizing new training samples in order to improve the accuracy of semantic segmentation networks.

TITLE: Accel: A Corrective Fusion Network for Efficient Semantic Segmentation on Video
http://openaccess.thecvf.com/content_CVPR_2019/html/Jain_Accel_A_Corrective_Fusion_Network_for_Efficient_Semantic_Segmentation_on_CVPR_2019_paper.html

AUTHORS: Samvit Jain, Xin Wang, Joseph E. Gonzalez
HIGHLIGHT: We present Accel, a novel semantic video segmentation system that achieves high accuracy at low inference cost by combining the predictions of two network branches: (1) a reference branch that extracts high-detail features on a reference keyframe, and warps these features forward using frame-to-frame optical flow estimates, and (2) an update branch that computes features of adjustable quality on the current frame, performing a temporal update at each video frame.

TITLE: Shape2Motion: Joint Analysis of Motion Parts and Attributes From 3D Shapes
http://openaccess.thecvf.com/content_CVPR_2019/html/Wang_Shape2Motion_Joint_Analysis_of_Motion_Parts_and_Attributes_From_3D_CVPR_2019_paper.html

AUTHORS: Xiaogang Wang, Bin Zhou, Yahao Shi, Xiaowu Chen, Qingping Zhao, Kai Xu
HIGHLIGHT: For the task of mobility analysis of 3D shapes, we propose joint analysis for simultaneous motion part segmentation and motion attribute estimation, taking a single 3D model as input.

TITLE: Semantic Correlation Promoted Shape-Variant Context for Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Ding_Semantic_Correlation_Promoted_Shape-Variant_Context_for_Segmentation_CVPR_2019_paper.html

AUTHORS: Henghui Ding, Xudong Jiang, Bing Shuai, Ai Qun Liu, Gang Wang
HIGHLIGHT: In this work, we propose to generate a scale- and shape-variant semantic mask for each pixel to confine its contextual region.

TITLE: Relation-Shape Convolutional Neural Network for Point Cloud Analysis
http://openaccess.thecvf.com/content_CVPR_2019/html/Liu_Relation-Shape_Convolutional_Neural_Network_for_Point_Cloud_Analysis_CVPR_2019_paper.html

AUTHORS: Yongcheng Liu, Bin Fan, Shiming Xiang, Chunhong Pan
HIGHLIGHT: In this paper, we propose RS-CNN, namely, Relation-Shape Convolutional Neural Network, which extends regular grid CNN to irregular configuration for point cloud analysis.

TITLE: Enhancing Diversity of Defocus Blur Detectors via Cross-Ensemble Network
http://openaccess.thecvf.com/content_CVPR_2019/html/Zhao_Enhancing_Diversity_of_Defocus_Blur_Detectors_via_Cross-Ensemble_Network_CVPR_2019_paper.html

AUTHORS: Wenda Zhao, Bowen Zheng, Qihua Lin, Huchuan Lu
HIGHLIGHT: In this paper, we propose a novel learning strategy by breaking DBD problem into multiple smaller defocus blur detectors and thus estimate errors can cancel out each other.

TITLE: BubbleNets: Learning to Select the Guidance Frame in Video Object Segmentation by Deep Sorting Frames
http://openaccess.thecvf.com/content_CVPR_2019/html/Griffin_BubbleNets_Learning_to_Select_the_Guidance_Frame_in_Video_Object_CVPR_2019_paper.html

AUTHORS: Brent A. Griffin, Jason J. Corso
HIGHLIGHT: This paper addresses the problem of learning to suggest the single best frame across the video for user annotation-this is, in fact, never the first frame of video.

TITLE: Collaborative Global-Local Networks for Memory-Efficient Segmentation of Ultra-High Resolution Images
http://openaccess.thecvf.com/content_CVPR_2019/html/Chen_Collaborative_Global-Local_Networks_for_Memory-Efficient_Segmentation_of_Ultra-High_Resolution_Images_CVPR_2019_paper.html

AUTHORS: Wuyang Chen, Ziyu Jiang, Zhangyang Wang, Kexin Cui, Xiaoning Qian
HIGHLIGHT: We propose collaborative Global-Local Networks (GLNet) to effectively preserve both global and local information in a highly memory-efficient manner.

TITLE: Efficient Parameter-Free Clustering Using First Neighbor Relations

http://openaccess.thecvf.com/content_CVPR_2019/html/Sarfraz_Efficient_Parameter-Free_Clustering_Using_First_Neighbor_Relations_CVPR_2019_paper.html

AUTHORS: Saqib Sarfraz, Vivek Sharma, Rainer Stiefelhagen

HIGHLIGHT: We present a new clustering method in the form of a single clustering equation that is able to directly discover groupings in the data.

TITLE: Learning Personalized Modular Network Guided by Structured Knowledge

http://openaccess.thecvf.com/content_CVPR_2019/html/Liang_Learning_Personalized_Modular_Network_Guided_by_Structured_Knowledge_CVPR_2019_paper.html

AUTHORS: Xiaodan Liang

HIGHLIGHT: In this paper, we treat the structured commonsense knowledge (e.g. concept hierarchy) as the guidance of customizing more powerful and explainable network structures for distinct inputs, leading to dynamic and individualized inference paths.

TITLE: A Generative Appearance Model for End-To-End Video Object Segmentation

http://openaccess.thecvf.com/content_CVPR_2019/html/Johnander_A_Generative_Appearance_Model_for_End-To-End_Video_Object_Segmentation_CVPR_2019_paper.html

AUTHORS: Joakim Johnander, Martin Danelljan, Emil Brissman, Fahad Shahbaz Khan, Michael Felsberg

HIGHLIGHT: To address these issues, we propose a network architecture that learns a powerful representation of the target and background appearance in a single forward pass.

TITLE: FEELVOS: Fast End-To-End Embedding Learning for Video Object Segmentation

http://openaccess.thecvf.com/content_CVPR_2019/html/Voigtlaender_FEELVOS_Fast_End-To-End_Embedding_Learning_for_Video_Object_Segmentation_CVPR_2019_paper.html

AUTHORS: Paul Voigtlaender, Yuning Chai, Florian Schroff, Hartwig Adam, Bastian Leibe, Liang-Chieh Chen

HIGHLIGHT: In this work, we propose FEELVOS as a simple and fast method which does not rely on fine-tuning.

TITLE: PartNet: A Recursive Part Decomposition Network for Fine-Grained and Hierarchical Shape Segmentation

http://openaccess.thecvf.com/content_CVPR_2019/html/Yu_PartNet_A_Recursive_Part_Decomposition_Network_for_Fine-Grained_and_Hierarchical_CVPR_2019_paper.html

AUTHORS: Fenggen Yu, Kun Liu, Yan Zhang, Chenyang Zhu, Kai Xu

HIGHLIGHT: It achieves the state-of-the-art performance, both for fine-grained and semantic segmentation, on the public benchmark and a new benchmark of fine-grained segmentation proposed in this work.

TITLE: Learning Multi-Class Segmentations From Single-Class Datasets

http://openaccess.thecvf.com/content_CVPR_2019/html/Dmitriev_Learning_Multi-Class_Segmentations_From_Single-Class_Datasets_CVPR_2019_paper.html

AUTHORS: Konstantin Dmitriev, Arie E. Kaufman

HIGHLIGHT: We demonstrate various ways of incorporating the conditional information, perform an extensive evaluation, and show compelling multi-class segmentation performance on biomedical images, which outperforms current state-of-the-art solutions (up to 2.7%).

TITLE: Convolutional Recurrent Network for Road Boundary Extraction

http://openaccess.thecvf.com/content_CVPR_2019/html/Liang_Convolutional_Recurrent_Network_for_Road_Boundary_Extraction_CVPR_2019_paper.html

AUTHORS: Justin Liang, Namdar Homayounfar, Wei-Chiu Ma, Shenlong Wang, Raquel Urtasun

HIGHLIGHT: In this paper, we tackle the problem of drivable road boundary extraction from LiDAR and camera imagery.

TITLE: DFANet: Deep Feature Aggregation for Real-Time Semantic Segmentation

http://openaccess.thecvf.com/content_CVPR_2019/html/Li_DFANet_Deep_Feature_Aggregation_for_Real-Time_Semantic_Segmentation_CVPR_2019_paper.html

AUTHORS: Hanchao Li, Pengfei Xiong, Haoqiang Fan, Jian Sun

HIGHLIGHT: This paper introduces an extremely efficient CNN architecture named DFANet for semantic segmentation under resource constraints.

TITLE: A Cross-Season Correspondence Dataset for Robust Semantic Segmentation

http://openaccess.thecvf.com/content_CVPR_2019/html/Larsson_A_Cross-Season_Correspondence_Dataset_for_Robust_Semantic_Segmentation_CVPR_2019_paper.html

AUTHORS: Mans Larsson, Erik Stenborg, Lars Hammarstrand, Marc Pollefeys, Torsten Sattler, Fredrik Kahl

HIGHLIGHT: In this paper, we present a method to utilize 2D-2D point matches between images taken during different image conditions to train a convolutional neural network for semantic segmentation.

TITLE: ManTra-Net: Manipulation Tracing Network for Detection and Localization of Image Forgeries With Anomalous Features
http://openaccess.thecvf.com/content_CVPR_2019/html/Wu_ManTra-Net_Manipulation_Tracing_Network_for_Detection_and_Localization_of_Image_CVPR_2019_paper.html
AUTHORS: Yue Wu, Wael AbdAlmageed, Premkumar Natarajan
HIGHLIGHT: To fight against real-life image forgery, which commonly involves different types and combined manipulations, we propose a unified deep neural architecture called ManTra-Net.

TITLE: Content-Aware Multi-Level Guidance for Interactive Instance Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Majumder_Content-Aware_Multi-Level_Guidance_for_Interactive_Instance_Segmentation_CVPR_2019_paper.html
AUTHORS: Soumajit Majumder, Angela Yao
HIGHLIGHT: We propose a novel transformation of user clicks to generate content-aware guidance maps that leverage the hierarchical structural information present in an image.

TITLE: Greedy Structure Learning of Hierarchical Compositional Models
http://openaccess.thecvf.com/content_CVPR_2019/html/Kortylewski_Greedy_Structure_Learning_of_Hierarchical_Compositional_Models_CVPR_2019_paper.html
AUTHORS: Adam Kortylewski, Aleksander Wiczonek, Mario Wieser, Clemens Blumer, Sonali Parbhoo, Andreas Morel-Forster, Volker Roth, Thomas Vetter
HIGHLIGHT: In this work, we consider the problem of learning a hierarchical generative model of an object from a set of images which show examples of the object in the presence of variable background clutter.

TITLE: Interactive Full Image Segmentation by Considering All Regions Jointly
http://openaccess.thecvf.com/content_CVPR_2019/html/Agustsson_Interactive_Full_Image_Segmentation_by_Considering_All_Regions_Jointly_CVPR_2019_paper.html
AUTHORS: Eirikur Agustsson, Jasper R. R. Uijlings, Vittorio Ferrari
HIGHLIGHT: We propose an interactive, scribble-based annotation framework which operates on the whole image to produce segmentations for all regions.

TITLE: Learning Active Contour Models for Medical Image Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Chen_Learning_Active_Contour_Models_for_Medical_Image_Segmentation_CVPR_2019_paper.html
AUTHORS: Xu Chen, Bryan M. Williams, Srinivasa R. Vallabhaneni, Gabriela Czanner, Rachel Williams, Yalin Zheng
HIGHLIGHT: Our aim was to tackle this limitation by developing a new model based on deep learning which takes into account the area inside as well as outside the region of interest as well as the size of boundaries during learning.

TITLE: Customizable Architecture Search for Semantic Segmentation
http://openaccess.thecvf.com/content_CVPR_2019/html/Zhang_Customizable_Architecture_Search_for_Semantic_Segmentation_CVPR_2019_paper.html
AUTHORS: Yiheng Zhang, Zhaofan Qiu, Jingen Liu, Ting Yao, Dong Liu, Tao Mei
HIGHLIGHT: In this paper, we propose a Customizable Architecture Search (CAS) approach to automatically generate a network architecture for semantic image segmentation.