

Refereed Publications (414)

REFEREED JOURNAL ARTICLES (168)

- 1 2023 M. Lin, M. Chen, Y. Zhang, C. Shen, R. Ji, L. Cao (2023), “[Super vision transformer](#)”, *Int’l J. Computer Vision*.
- 2 H. Xiong, H. Lu, C. Liu, L. Liu, C. Shen, Z. Cao (2023), “[From open set to closed set: supervised spatial divide-and-conquer for object counting](#)”, *Int’l J. Computer Vision*.
- 3 Y. Xi, H. Chen, N. Wang, P. Wang, Y. Zhang, C. Shen, Y. Liu (2023), “[A dynamic feature interaction framework for multi-task visual perception](#)”, *Int’l J. Computer Vision*.
- 4 Y. Yan, Y. Shu, S. Chen, J. Xue, C. Shen, H. Wang (2023), “[SPL-Net: spatial-semantic patch learning network for facial attribute recognition with limited labeled data](#)”, *Int’l J. Computer Vision*.
- 5 N. Sai, J. Bockman, H. Chen, N. Watson-Haigh, B. Xu, X. Feng, A. Piechatzek, C. Shen, M. Gilliam (2023), “[SAI: an efficient and user-friendly tool for measurement of stomatal pores and density using deep computer vision](#)”, *New Phytologist*.
- 6 J. Liu, B. Zhuang, P. Chen, C. Shen, J. Cai, M. Tan (2023), “[Single-path bit sharing for automatic loss-aware model compression](#)”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- 7 2022 L. Wang, H. Zhang, Q. Xiao, H. Xu, C. Shen, X. Jin (2022), “[Effective eyebrow matting with domain adaptation](#)”, *Computer Graphics Forum*.
- 8 B. Zhuang, C. Shen, M. Tan, P. Chen, L. Liu, I. Reid (2022), “[Structured binary neural networks for image recognition](#)”, *Int’l J. Computer Vision*.
- 9 Y. Cai, Y. Liu, C. L. Jin, Y. Li, D. Ergu (2022), “[Arbitrarily shaped scene text detection with dynamic convolution](#)”, *Pattern Recognition*.
- 10 L. Cheng, P. Fang, Y. Liang, L. Zhang, C. Shen, H. Wang (2022), “[TSGB: target-selective gradient backprop for probing CNN visual saliency](#)”, *IEEE Trans. Image Processing*.
- 11 T. He, C. Shen, A. van den Hengel (2022), “[Dynamic convolution for 3D point cloud instance segmentation](#)”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- 12 C. Zhang, Y. Cai, G. Lin, C. Shen (2022), “[DeepEMD: differentiable earth mover’s distance for few-shot learning](#)”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- 13 W. Yin, J. Zhang, O. Wang, S. Niklaus, S. Chen, Y. Liu, C. Shen (2022), “[Towards accurate reconstruction of 3D scene shape from a single monocular image](#)”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- 14 Z. Tian, B. Zhang, H. Chen, C. Shen (2022), “[Instance and panoptic segmentation using conditional convolutions](#)”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- 15 L. Sun, W. Yin, E. Xie, Z. Li, C. Sun, C. Shen (2022), “[Improving monocular visual odometry using learned depth](#)”, *IEEE Trans. Robotics*.
- 16 X. Wang, R. Zhang, C. Shen, T. Kong (2022), “[DenseCL: a simple framework for self-supervised dense visual pre-training](#)”, *Visual Informatics*.
- 17 2021 Y. Cui, D. Guo, Y. Shao, Z. Wang, C. Shen, L. Zhang, S. Chen (2021), “[Joint classification and regression for visual tracking with fully convolutional Siamese networks](#)”, *Int’l J. Computer Vision*.
- 18 H. Zhang, Y. Li, H. Chen, C. Gong, Z. Bai, C. Shen (2021), “[Memory-efficient hierarchical neural architecture search for image restoration](#)”, *Int’l J. Computer Vision*.
- 19 Q. Yan, D. Gong, Q. Shi, A. van den Hengel, C. Shen, I. Reid, Y. Zhang (2021), “[A dual-attention-guided network for ghost-free high dynamic range imaging](#)”, *Int’l J. Computer Vision*.
- 20 C. Yu, C. Gao, J. Wang, G. Yu, C. Shen, N. Sang (2021), “[BiSeNet v2: bilateral network with guided aggregation for real-time semantic segmentation](#)”, *Int’l J. Computer Vision*.
- 21 N. Wang, Y. Gao, H. Chen, P. Wang, Z. Tian, C. Shen, Y. Zhang (2021), “[NAS-FCOS: efficient search for object detection architectures](#)”, *Int’l J. Computer Vision*.
- 22 J. Bian, H. Zhan, N. Wang, Z. Li, L. Zhang, C. Shen, M. Cheng, I. Reid (2021), “[Unsupervised scale-consistent depth learning from video](#)”, *Int’l J. Computer Vision*.
- 23 Y. Liu, T. He, H. Chen, X. Wang, C. Luo, S. Zhang, C. Shen, L. Jin (2021), “[Exploring the capacity of an orderless box discretization network for multi-orientation scene text detection](#)”, *Int’l J. Computer Vision*.
- 24 Y. Zhao, X. Yu, Y. Gao, C. Shen (2021), “[Learning discriminative region representation for person retrieval](#)”, *Pattern Recognition*.
- 25 Y. Zhao, C. Shen, X. Yu, H. Chen, Y. Gao, S. Xiong (2021), “[Learning deep part-aware embedding for person retrieval](#)”, *Pattern Recognition*.
- 26 L. Tian, P. Wang, G. Liang, C. Shen (2021), “[An adversarial human pose estimation network injected with graph structure](#)”, *Pattern Recognition*.

- Y. Xie, J. Zhang, Z. Liao, J. Verjans, C. Shen, Y. Xia (2021), “Intra- and inter-pair consistency for semi-supervised gland segmentation”, *IEEE Trans. Image Processing*.
- J. Bian, H. Zhan, N. Wang, T. Chin, C. Shen, I. Reid (2021), “Auto-rectify network for unsupervised indoor depth estimation”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- X. Wang, R. Zhang, C. Shen, T. Kong, L. Li (2021), “SOLO: a simple framework for instance segmentation”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- Y. Liu, C. Shen, L. Jin, T. He, P. Chen, C. Liu, H. Chen (2021), “ABCNet v2: adaptive bezier-curve network for real-time end-to-end text spotting”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- W. Yin, Y. Liu, C. Shen (2021), “Virtual normal: enforcing geometric constraints for accurate and robust depth prediction”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- P. Wang, H. Li, C. Shen (2021), “Towards end-to-end text spotting in natural scenes”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- W. Wang, E. Xie, X. Li, X. Liu, D. Liang, Z. Yang, T. Lu, C. Shen (2021), “PAN++: towards efficient and accurate end-to-end spotting of arbitrarily-shaped text”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- B. Zhuang, J. Liu, M. Tan, L. Liu, I. Reid, C. Shen (2021), “Effective training of convolutional neural networks with low-bitwidth weights and activations”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- G. Pang, C. Shen, L. Cao, A. van den Hengel (2020), “Deep learning for anomaly detection: a review”, *ACM Computing Surveys*.
- Y. Dai, H. Lu, C. Shen (2020), “Towards light-weight portrait matting via parameter sharing”, *Computer Graphics Forum*.
- C. Luo, Q. Lin, Y. Liu, L. Jin, C. Shen (2020), “Separating content from style using adversarial learning for recognizing text in the wild”, *Int’l J. Computer Vision*.
- H. Xiong, Z. Cao, H. Lu, S. Madec, L. Liu, C. Shen (2020), “TasselNetv2: in-field counting of wheat spikes with context-augmented local regression networks”, *Plant Methods*.
- Y. Zhao, Y. Liu, C. Shen, Y. Gao, S. Xiong (2020), “MobileFAN: transferring deep hidden representation for face alignment”, *Pattern Recognition*.
- X. Zhang, R. Zhang, J. Cao, D. Gong, M. You, C. Shen (2020), “Part-guided attention learning for vehicle instance retrieval”, *IEEE Trans. Intelligent Transportation Systems*.
- G. Dong, Y. Yan, C. Shen, H. Wang (2020), “Real-time high-performance semantic image segmentation of urban street scenes”, *IEEE Trans. Intelligent Transportation Systems*.
- L. Zhang, P. Wang, H. Li, Z. Li, C. Shen, Y. Zhang (2020), “A robust attentional framework for license plate recognition in the wild”, *IEEE Trans. Intelligent Transportation Systems*.
- L. Liu, Z. Cao, H. Lu, H. Xiong, C. Shen (2020), “NSSNet: scale-aware object counting with non-scale suppression”, *IEEE Trans. Circuits and Systems for Video Technology*.
- L. Zhang, P. Wang, L. Liu, C. Shen, W. Wei, Y. Zhang, A. van den Hengel (2020), “Towards effective deep embedding for zero-shot learning”, *IEEE Trans. Circuits and Systems for Video Technology*.
- J. Zhang, Y. Xie, Z. Liao, G. Pang, J. Verjans, W. Li, Z. Sun, J. He, Y. Li, C. Shen, Y. Xia (2020), “Viral pneumonia screening on chest x-ray images using confidence-aware anomaly detection”, *IEEE Trans. Medical Imaging*.
- Y. Xie, J. Zhang, H. Lu, C. Shen, Y. Xia (2020), “SESV: accurate medical image segmentation by predicting and correcting errors”, *IEEE Trans. Medical Imaging*.
- Y. Xie, J. Zhang, Y. Xia, C. Shen (2020), “A mutual bootstrapping model for automated skin lesion segmentation and classification”, *IEEE Trans. Medical Imaging*.
- S. Zhang, Y. Liu, L. Jin, Z. Wei, C. Shen (2020), “OPMP: an omni-directional pyramid mask proposal network for arbitrary-shape scene text detection”, *IEEE Trans. Multimedia*.
- Y. Yan, Y. Huang, S. Chen, C. Shen, H. Wang (2020), “Joint deep learning of facial expression synthesis and recognition”, *IEEE Trans. Multimedia*.
- X. Peng, H. Zhu, J. Feng, C. Shen, H. Zhang, J. Zhou (2020), “Deep clustering with sample-assignment invariance prior”, *IEEE Trans. Neural Networks and Learning Systems*.
- D. Gong, Z. Zhang, Q. Shi, A. van den Hengel, C. Shen, Y. Zhang (2020), “Learning deep gradient descent optimization for image deconvolution”, *IEEE Trans. Neural Networks and Learning Systems*.
- L. Zhang, W. Wei, Q. Shi, C. Shen, A. van den Hengel, Y. Zhang (2020), “Accurate tensor completion via adaptive low-rank representation”, *IEEE Trans. Neural Networks and Learning Systems*.
- W. Liu, P. Zhang, X. Huang, J. Yang, C. Shen, I. Reid (2020), “Real-time image smoothing via iterative least squares”, *ACM Trans. Graphics*.

54 J. Cao, Y. Guo, Q. Wu, C. Shen, J. Huang, M. Tan (2020), “Improving generative adversarial networks with local coordinate coding”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.

55 H. Lu, Y. Dai, C. Shen, S. Xu (2020), “Index networks”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.

56 Y. Liu, C. Shun, J. Wang, C. Shen (2020), “Structured knowledge distillation for dense prediction”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.

57 Y. Zhou, R. Ji, J. Su, X. Sun, D. Meng, Y. Gao, C. Shen (2020), “Plenty is plague: fine-grained learning for visual question answering”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.

58 L. Zhang, Z. Shi, J. Zhou, M. Cheng, Y. Liu, J. Bian, Z. Zeng, C. Shen (2020), “Ordered or orderless: a revisit for video based person re-identification”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.

59 Y. Chen, C. Shen, H. Chen, X. Wei, L. Liu, J. Yang (2020), “Adversarial learning of structure-aware fully convolutional networks for landmark localization”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 42: 1654–1669.

60 2019 L. Zhang, P. Wang, C. Shen, L. Liu, W. Wei, Y. Zhang, A. van den Hengel (2019), “Adaptive importance learning for improving lightweight image super-resolution network”, *Int’l J. Computer Vision*.

61 L. Zhang, W. Wei, Q. Shen, C. Shen, A. van den Hengel (2019), “Accurate imagery recovery using a multi-observation patch model”, *Information Sciences*.

62 J. Zhang, Q. Wu, J. Zhang, C. Shen, J. Lu, Q. Wu (2019), “Heritage image annotation via collective knowledge”, *Pattern Recognition*.

63 P. Wang, L. Liu, C. Shen, H. Shen (2019), “Order-aware convolutional pooling for video based action recognition”, *Pattern Recognition*.

64 Z. Wu, C. Shen, A. van den Hengel (2019), “Wider or deeper: revisiting the ResNet model for visual recognition”, *Pattern Recognition*.

65 Y. Zhao, C. Shen, H. Wang, S. Chen (2019), “Structural analysis of attributes for vehicle re-identification and retrieval”, *IEEE Trans. Intelligent Transportation Systems*.

66 X. Wang, C. Shen, H. Li, S. Xu (2019), “Human detection aided by deeply learned semantic masks”, *IEEE Trans. Circuits and Systems for Video Technology*.

67 L. Liu, H. Lu, H. Xiong, K. Xian, Z. Cao, C. Shen (2019), “Counting objects by blockwise classification”, *IEEE Trans. Circuits and Systems for Video Technology*.

68 W. Liu, P. Zhang, X. Chen, C. Shen, X. Huang, J. Yang (2019), “Embedding bilateral filter in least squares for efficient edge-preserving image smoothing”, *IEEE Trans. Circuits and Systems for Video Technology*.

69 H. Zhang, Y. Li, Y. Jiang, P. Wang, Q. Shen, C. Shen (2019), “Hyperspectral classification based on lightweight 3D-CNN with transfer learning”, *IEEE Trans. Geoscience and Remote Sensing*.

70 X. Wei, P. Wang, L. Liu, C. Shen, J. Wu (2019), “Piecewise classifier mappings: learning fine-grained learners for novel categories with few examples”, *IEEE Trans. Image Processing*.

71 P. Zhang, W. Liu, H. Lu, C. Shen (2019), “Salient object detection with lossless feature reflection and weighted structural loss”, *IEEE Trans. Image Processing*.

72 X. Wei, H. Ye, X. Mu, J. Wu, C. Shen, Z. Zhou (2019), “Multiple instance learning with emerging novel class”, *IEEE Trans. Knowledge and Data Engineering*.

73 J. Zhang, Y. Xie, Y. Xia, C. Shen (2019), “Attention residual learning for skin lesion classification”, *IEEE Trans. Medical Imaging*.

74 T. Zhang, G. Lin, J. Cai, T. Shen, C. Shen, A. Kot (2019), “Decoupled spatial neural attention for weakly supervised semantic segmentation”, *IEEE Trans. Multimedia*.

75 G. Lin, F. Liu, A. Milan, C. Shen, I. Reid (2019), “RefineNet: multi-path refinement networks for dense prediction”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.

76 2018 L. Zhang, W. Wei, Y. Zhang, C. Shen, A. van den Hengel, Q. Shi (2018), “Cluster sparsity field: an internal hyperspectral imagery prior for reconstruction”, *Int’l J. Computer Vision*.

77 H. Li, P. Wang, M. You, C. Shen (2018), “Reading car license plates using deep neural networks”, *Image and Vision Computing*.

78 X. Wei, C. Zhang, J. Wu, C. Shen, Z. Zhou (2018), “Unsupervised object discovery and co-localization by deep descriptor transforming”, *Pattern Recognition*.

79 N. Zhuang, Y. Yan, S. Chen, H. Wang, C. Shen (2018), “Multi-label learning based deep transfer neural network for facial attribute classification”, *Pattern Recognition*.

80 H. Li, P. Wang, C. Shen (2018), “Towards end-to-end car license plates detection and recognition with deep neural networks”, *IEEE Trans. Intelligent Transportation Systems*.

81 M. You, Y. Zhang, C. Shen, X. Zhang (2018), “An extended filtered channel framework for pedestrian

detection", *IEEE Trans. Intelligent Transportation Systems* 19: 1640–1651.

R. Yao, G. Lin, C. Shen, Y. Zhang, Q. Shi (2018), "Semantics-aware visual object tracking", *IEEE Trans. Circuits and Systems for Video Technology*.

L. Zhang, P. Wang, W. Wei, H. Lu, C. Shen, A. van den Hengel, Y. Zhang (2018), "Unsupervised domain adaptation using robust class-wise matching", *IEEE Trans. Circuits and Systems for Video Technology*.

Q. Hu, P. Wang, C. Shen, A. van den Hengel, F. Porikli (2018), "Pushing the limits of deep CNNs for pedestrian detection", *IEEE Trans. Circuits and Systems for Video Technology* 28.

H. Lu, C. Shen, Z. Cao, Y. Xiao, A. van den Hengel (2018), "An embarrassingly simple approach to visual domain adaptation", *IEEE Trans. Image Processing* 27: 3403–3417.

J. Zhang, Q. Wu, C. Shen, J. Zhang, J. Lu (2018), "Multi-label image classification with regional latent semantic dependencies", *IEEE Trans. Multimedia*.

G. Guo, H. Wang, C. Shen, Y. Yan, H. Liao (2018), "Automatic image cropping for visual aesthetic enhancement using deep neural networks and cascaded regression", *IEEE Trans. Multimedia*.

H. Liu, R. Ji, J. Wang, C. Shen (2018), "Ordinal constraint binary coding for approximate nearest neighbor search", *IEEE Trans. Pattern Analysis and Machine Intelligence*.

P. Wang, Q. Wu, C. Shen, A. Dick, A. van den Hengel (2018), "FVQA: fact-based visual question answering", *IEEE Trans. Pattern Analysis and Machine Intelligence* 40: 2413–2427.

Q. Wu, D. Teney, P. Wang, C. Shen, A. Dick, A. van den Hengel (2017), "Visual question answering: a survey of methods and datasets", *Computer Vision and Image Understanding*.

G. Lin, F. Liu, C. Shen, J. Wu, H. Shen (2017), "Structured learning of binary codes with column generation for optimizing ranking measures", *Int'l J. Computer Vision*.

Y. Li, W. Li, C. Shen (2017), "Removal of optically thick clouds from high-resolution satellite imagery using dictionary group learning and interdictionary nonlocal joint sparse coding", *IEEE J. Selected Topics in Applied Earth Observations and Remote Sensing*.

H. Lu, Z. Cao, Y. Xiao, B. Zhuang, C. Shen (2017), "TasselNet: counting maize tassels in the wild via local counts regression network", *Plant Methods*.

X. Wei, C. Xie, J. Wu, C. Shen (2017), "Mask-CNN: localizing parts and selecting descriptors for bird species categorization", *Pattern Recognition*.

R. Qiao, L. Liu, C. Shen, A. van den Hengel (2017), "Learning discriminative trajectorylet detector sets for accurate skeleton-based action recognition", *Pattern Recognition*.

L. Wu, C. Shen, A. van den Hengel (2017), "Deep linear discriminant analysis on Fisher networks: a hybrid architecture for person re-identification", *Pattern Recognition*.

Q. Hu, H. Wang, T. Li, C. Shen (2017), "Deep CNNs with spatially weighted pooling for fine-grained car recognition", *IEEE Trans. Intelligent Transportation Systems*.

Y. Cao, Z. Wu, C. Shen (2017), "Estimating depth from monocular images as classification using deep fully convolutional residual networks", *IEEE Trans. Circuits and Systems for Video Technology*.

B. Sheng, C. Shen, G. Lin, J. Li, W. Yang, C. Sun (2017), "Crowd counting via weighted VLAD on dense attribute feature maps", *IEEE Trans. Circuits and Systems for Video Technology*.

F. Liu, G. Lin, C. Shen (2017), "Discriminative training of deep fully-connected continuous CRF with task-specific loss", *IEEE Trans. Image Processing*.

Y. Cao, C. Shen, H. Shen (2017), "Exploiting depth from single monocular images for object detection and semantic segmentation", *IEEE Trans. Image Processing*.

F. Liu, G. Lin, R. Qiao, C. Shen (2017), "Structured learning of tree potentials in CRF for image segmentation", *IEEE Trans. Neural Networks and Learning Systems*.

G. Lin, C. Shen, A. van den Hengel, I. Reid (2017), "Exploring context with deep structured models for semantic segmentation", *IEEE Trans. Pattern Analysis and Machine Intelligence*.

Q. Wu, C. Shen, P. Wang, A. Dick, A. van den Hengel (2017), "Image captioning and visual question answering based on attributes and external knowledge", *IEEE Trans. Pattern Analysis and Machine Intelligence*.

L. Liu, P. Wang, C. Shen, L. Wang, A. van den Hengel, C. Wang, H. Shen (2017), "Compositional model based Fisher vector coding for image classification", *IEEE Trans. Pattern Analysis and Machine Intelligence*.

L. Liu, C. Shen, A. van den Hengel (2017), "Cross-convolutional-layer pooling for image recognition", *IEEE Trans. Pattern Analysis and Machine Intelligence* 39: 2305–2313.

S. Paisitkriangkrai, L. Wu, C. Shen, A. van den Hengel (2016), "Structured learning of metric ensembles with application to person re-identification", *Computer Vision and Image Understanding*.

Y. Li, L. Liu, C. Shen, A. van den Hengel (2016), "Mining mid-level visual patterns with deep CNN activations", *Int'l J. Computer Vision*.

109 P. Wang, C. Shen, A. van den Hengel, P. Torr (2016), “Efficient semidefinite branch-and-cut for MAP-MRF inference”, *Int’l J. Computer Vision* 117: 269–289.

110 C. Zhang, C. Shen, T. Shen (2016), “Unsupervised feature learning for dense correspondences across scenes”, *Int’l J. Computer Vision* 116: 90–107.

111 F. Liu, C. Shen, I. Reid, A. van den Hengel (2016), “Online unsupervised feature learning for visual tracking”, *Image and Vision Computing*.

112 S. Wang, J. Lu, X. Gu, C. Shen, R. Xia, J. Yang (2016), “Canonical principal angles correlation analysis for two-view data”, *J. Visual Communication and Image Representation*.

113 H. Li, F. Shen, C. Shen, Y. Yang, Y. Gao (2016), “Face recognition using linear representation ensembles”, *Pattern Recognition*.

114 F. Shen, C. Shen, X. Zhou, Y. Yang, H. Shen (2016), “Face image classification by pooling raw features”, *Pattern Recognition* 54: 94–103.

115 Q. Hu, S. Paisitkriangkrai, C. Shen, A. van den Hengel, F. Porikli (2016), “Fast detection of multiple objects in traffic scenes with a common detection framework”, *IEEE Trans. Intelligent Transportation Systems* 17: 1002–1014.

116 P. Wang, Y. Cao, C. Shen, L. Liu, H. Shen (2016), “Temporal pyramid pooling based convolutional neural network for action recognition”, *IEEE Trans. Circuits and Systems for Video Technology*.

117 R. Yao, Q. Shi, C. Shen, Y. Zhang, A. van den Hengel (2016), “Part-based robust tracking using online latent structured learning”, *IEEE Trans. Circuits and Systems for Video Technology*.

118 L. Zhang, W. Wei, Y. Zhang, C. Shen, A. van den Hengel, Q. Shi (2016), “Dictionary learning for promoting structured sparsity in hyperspectral compressive sensing”, *IEEE Trans. Geoscience and Remote Sensing* 54: 7223–7235.

119 X. Zhao, X. Li, Z. Zhang, C. Shen, L. Gao, X. Li (2016), “Scalable linear visual feature learning via online parallel nonnegative matrix factorization”, *IEEE Trans. Neural Networks and Learning Systems*.

120 P. Wang, C. Shen, A. van den Hengel, P. Torr (2016), “Large-scale binary quadratic optimization using semidefinite relaxation and applications”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.

121 F. Liu, C. Shen, G. Lin, I. Reid (2016), “Learning depth from single monocular images using deep convolutional neural fields”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.

122 X. Li, C. Shen, A. Dick, Z. Zhang, Y. Zhuang (2016), “Online metric-weighted linear representations for robust visual tracking”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 38: 931–950.

123 S. Paisitkriangkrai, C. Shen, A. van den Hengel (2016), “Pedestrian detection with spatially pooled features and structured ensemble learning”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 38: 1243–1257.

124 L. Liu, L. Wang, C. Shen (2016), “A generalized probabilistic framework for compact codebook creation”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 38: 224–237.

125 2015 M. Harandi, R. Hartley, C. Shen, B. Lovell, C. Sanderson (2015), “Extrinsic methods for coding and dictionary learning on Grassmann manifolds”, *Int’l J. Computer Vision* 114: 113–136.

126 F. Liu, G. Lin, C. Shen (2015), “CRF learning with CNN features for image segmentation”, *Pattern Recognition* 48: 2983–2992.

127 F. Shen, C. Shen, Q. Shi, A. van den Hengel, Z. Tang, H. Shen (2015), “Hashing on nonlinear manifolds”, *IEEE Trans. Image Processing* 24: 1839–1851.

128 H. Li, C. Shen, A. van den Hengel, Q. Shi (2015), “Worst-case linear discriminant analysis as scalable semidefinite feasibility problems”, *IEEE Trans. Image Processing* 24: 2382–2392.

129 L. Luo, C. Shen, X. Liu, C. Zhang (2015), “A computational model of the short-cut rule for 2D shape decomposition”, *IEEE Trans. Image Processing* 24.

130 G. Lin, C. Shen, A. van den Hengel (2015), “Supervised hashing using graph cuts and boosted decision trees”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 37: 2317–2331.

131 2014 F. Shen, C. Shen, R. Hill, A. van den Hengel, Z. Tang (2014), “Fast approximate l_∞ minimization: Speeding up robust regression”, *Computational Statistics and Data Analysis* 77: 25–37.

132 F. Liu, L. Zhou, C. Shen, J. Yin (2014), “Multiple kernel learning in the primal for multi-modal Alzheimer’s disease classification”, *IEEE J. Biomedical and Health Informatics*.

133 Y. Lu, L. Wang, J. Lu, J. Yang, C. Shen (2014), “Multiple kernel clustering based on centered kernel alignment”, *Pattern Recognition* 47: 3656–3664.

134 S. Paisitkriangkrai, C. Shen, A. van den Hengel (2014), “Large-margin learning of compact binary image encodings”, *IEEE Trans. Image Processing* 23: 4041–4054.

135 Y. Yan, C. Shen, H. Wang (2014), “Efficient semidefinite spectral clustering via Lagrange duality”, *IEEE Trans. Image Processing* 23: 3522–3534.

136 Y. Li, W. Jia, C. Shen, A. van den Hengel (2014), “Characterness: An indicator of text in the wild”, *IEEE Trans. Image Processing* 23: 1666–1677.

137 X. Li, W. Hu, C. Shen, A. Dick, Z. Zhang (2014), “Context-aware hypergraph construction for robust spectral clustering”, *IEEE Trans. Knowledge and Data Engineering* 26: 2588–2597.

138 S. Paisitkriangkrai, C. Shen, A. van den Hengel (2014), “Asymmetric pruning for learning cascade detectors”, *IEEE Trans. Multimedia* 16: 1254–1267.

139 C. Shen, J. Kim, F. Liu, L. Wang, A. van den Hengel (2014), “Efficient dual approach to distance metric learning”, *IEEE Trans. Neural Networks and Learning Systems* 25: 394–406.

140 S. Paisitkriangkrai, C. Shen, A. van den Hengel (2014), “A scalable stage-wise approach to large-margin multi-class loss based boosting”, *IEEE Trans. Neural Networks and Learning Systems* 25: 1002–1013.

141 S. Paisitkriangkrai, C. Shen, Q. Shi, A. van den Hengel (2014), “RandomBoost: Simplified multi-class boosting through randomization”, *IEEE Trans. Neural Networks and Learning Systems* 25: 764–779.

142 C. Shen, G. Lin, A. van den Hengel (2014), “StructBoost: Boosting methods for predicting structured output variables”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 36: 2089–2103.

143 L. Wang, L. Zhou, C. Shen, L. Liu, H. Liu (2014), “A hierarchical word-merging algorithm with class separability measure”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 36: 417–435.

144 2013 C. Shen, P. Wang, S. Paisitkriangkrai, A. van den Hengel (2013), “Training effective node classifiers for cascade classification”, *Int’l J. Computer Vision* 103: 326–347.

145 C. Shen, H. Li, A. van den Hengel (2013), “Fully corrective boosting with arbitrary loss and regularization”, *Neural Networks* 48: 44–58.

146 X. Li, A. Dick, C. Shen, Z. Zhang, A. van den Hengel, H. Wang (2013), “Visual tracking with spatio-temporal Dempster-Shafer information fusion”, *IEEE Trans. Image Processing* 22: 3028–3040.

147 F. Shen, C. Shen, A. van den Hengel, Z. Tang (2013), “Approximate least trimmed sum of squares fitting and applications in image analysis”, *IEEE Trans. Image Processing* 22: 1836–1847.

148 X. Li, W. Hu, C. Shen, Z. Zhang, A. Dick, A. van den Hengel (2013), “A survey of appearance models in visual object tracking”, *ACM Trans. Intelligent Systems and Technology* 4.

149 L. Luo, C. Shen, C. Zhang, A. van den Hengel (2013), “Shape similarity analysis by self-tuning locally constrained mixed-diffusion”, *IEEE Trans. Multimedia* 15: 1174–1183.

150 X. Li, A. Dick, C. Shen, A. van den Hengel, H. Wang (2013), “Incremental learning of 3D-DCT compact representations for robust visual tracking”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 35: 863–881.

151 2012 C. Shen, J. Kim, L. Wang, A. van den Hengel (2012), “Positive semidefinite metric learning using boosting-like algorithms”, *J. Machine Learning Research* 13: 1007–1036.

152 P. Wang, C. Shen, N. Barnes, H. Zheng (2012), “Fast and robust object detection using asymmetric totally-corrective boosting”, *IEEE Trans. Neural Networks and Learning Systems* 23: 33–46.

153 C. Shen, P. Wang, F. Shen, H. Wang (2012), “UBoost: Boosting with the Universum”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 34: 825–832.

154 2011 C. Shen, S. Paisitkriangkrai, J. Zhang (2011), “Efficiently learning a detection cascade with sparse eigenvectors”, *IEEE Trans. Image Processing* 20: 22–35.

155 S. Paisitkriangkrai, C. Shen, J. Zhang (2011), “Incremental training of a detector using online sparse eigen-decomposition”, *IEEE Trans. Image Processing* 20: 213–226.

156 2010 H. Li, C. Shen (2010), “Interactive color image segmentation with linear programming”, *Machine Vision and Applications* 21: 403–412.

157 C. Shen, J. Kim, H. Wang (2010), “Generalized kernel-based visual tracking”, *IEEE Trans. Circuits and Systems for Video Technology* 20: 119–130.

158 C. Shen, J. Kim, L. Wang (2010), “Scalable large-margin Mahalanobis distance metric learning”, *IEEE Trans. Neural Networks* 21: 1524–1530.

159 L. Zhou, L. Wang, C. Shen (2010), “Feature selection with redundancy-constrained class separability”, *IEEE Trans. Neural Networks* 21: 853–858.

160 C. Shen, H. Li (2010), “Boosting through optimization of margin distributions”, *IEEE Trans. Neural Networks* 21: 659–666.

161 C. Shen, H. Li (2010), “On the dual formulation of boosting algorithms”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 32: 2216–2231.

162 2008 S. Paisitkriangkrai, C. Shen, J. Zhang (2008), “Performance evaluation of local features in human classification and detection”, *IET Computer Vision* 2: 236–246.

163 C. Shen, H. Li, M. Brooks (2008), “Supervised dimensionality reduction via sequential semidefinite pro-

gramming”, *Pattern Recognition* 41: 3644–3652.

S. Paisitkriangkrai, C. Shen, J. Zhang (2008), “Fast pedestrian detection using a cascade of boosted covariance features”, *IEEE Trans. Circuits and Systems for Video Technology* 18: 1140–1151.

C. Shen, M. Brooks, A. van den Hengel (2007), “Fast global kernel density mode seeking: applications to localization and tracking”, *IEEE Trans. Image Processing* 16: 1457–1469.

H. Wang, D. Suter, K. Schindler, C. Shen (2007), “Adaptive object tracking based on an effective appearance filter”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 29: 1661–1667.

Z. Lin, J. Lu, C. Shen, X. Qiu, B. Xu (2004), “Active control of radiation from a piston set in a rigid sphere”, *J. Acoustical Society of America* 115: 2954–2963.

J. Lu, C. Shen, X. Qiu, B. Xu (2003), “Lattice form adaptive infinite impulse response filtering algorithm for active noise control”, *J. Acoustical Society of America* 113: 327–335.

REFEREED TOP CONFERENCE ARTICLES IN COMPUTER VISION AND MACHINE LEARNING (170)

- *Proc. Annual Conf. Neural Information Processing Systems (NeurIPS)*
- *Proc. Int. Conf. Machine Learning (ICML)*
- *Proc. IEEE Conf. Computer Vision & Pattern Recognition (CVPR)*
- *Proc. Int. Conf. Computer Vision (ICCV)*
- *Proc. European Conf. Computer Vision (ECCV)*
- *Proc. Int. Conf. Learning Representations (ICLR)*

X. Wang, W. Wang, Y. Cao, C. Shen, T. Huang (2023), “Images speak in images: a generalist painter for in-context visual learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’23)*.

Q. Wang, L. Liu, C. Jing, H. Chen, G. Liang, P. Wang, C. Shen (2023), “Learning conditional attributes for compositional zero-shot learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’23)*.

W. Yin, C. Zhang, H. Chen, Z. Cai, G. Yu, K. Wang, X. Chen, C. Shen (2023), “Metric3D: towards zero-shot metric 3d prediction from a single image”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

X. Wang, X. Zhang, Y. Cao, W. Wang, C. Shen, T. Huang (2023), “SegGPT: segmenting everything in context”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

G. Xu, W. Yin, H. Chen, C. Shen, K. Cheng, F. Zhao (2023), “Pose-free 3d scene reconstruction with frozen depth models”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

W. Wu, Y. Zhao, M. Shou, H. Zhou, C. Shen (2023), “Diffumask: synthesizing images with pixel-level annotations for semantic segmentation using diffusion models”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

K. Ying, Q. Zhong, W. Mao, Z. Wang, H. Chen, L. Wu, Y. Liu, C. Fan, Y. Zhuge, C. Shen (2023), “CTVIS: consistent training for online video instance segmentation”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

W. Wang, Y. Ge, H. Mei, Z. Cai, Q. Sun, C. Shen, Y. Wang, L. Yang, T. Komura (2023), “Zolly: zoom focal length correctly for perspective-distorted human mesh reconstruction”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

Y. Zhao, Q. Ye, W. Wu, C. Shen, F. Wan (2023), “Generative prompt model for weakly supervised object localization”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

M. Zhu, H. Li, H. Chen, C. Fan, W. Mao, C. Jing, Y. Liu, C. Shen (2023), “Segprompt: boosting open-world segmentation via category-level prompt learning”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

C. Zhang, W. Yin, G. Yu, Z. Wang, T. Chen, B. Fu, J. Zhou, C. Shen (2023), “Robust geometry-preserving depth estimation using differentiable rendering”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’23)*.

X. Chu, Z. Tian, B. Zhang, X. Wang, X. Wei, H. Xia, C. Shen (2023), “Conditional positional encodings for vision transformers”, In: *Proc. Int’l Conf. Learning Representations (ICLR’23)*.

X. Wang, Z. Yu, S. De Mello, J. Kautz, A. Anandkumar, C. Shen, J. Alvarez (2022), “FreeSOLO: learning to segment objects without annotations”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’22)*.

A. Long, W. Yin, T. Ajanthan, V. Nguyen, P. Purkait, R. Garg, A. Blair, C. Shen, A. van den Hengel (2022), “Retrieval augmented classification for long-tail visual recognition”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’22)*.

Y. Dai, B. Price, H. Zhang, C. Shen (2022), “Boosting robustness of image matting with context assembling and strong data augmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’22)*.

W. Zhang, Z. Huang, G. Yu, T. Chen, G. Luo, X. Wang, W. Liu, C. Shen (2022), “TopFormer: token pyramid transformer for mobile semantic segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern*

- 17 C. Ding, G. Pan, C. Shen (2022), "Catching both gray and black swans: open-set supervised anomaly detection", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'22)*.
- 18 R. Li, C. Zhang, G. Lin, Z. Wang, C. Shen (2022), "RigidFlow: self-supervised scene flow learning on point clouds by local rigidity prior", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'22)*.
- 19 Y. Gao, J. Zhuang, S. Lin, H. Cheng, X. Sun, K. Li, C. Shen (2022), "DisCo: remedying self-supervised learning on lightweight models with distilled contrastive learning", In: *Proc. European Conf. Computer Vision (ECCV'22)*.
- 20 P. Chen, M. Zhang, Y. Shen, K. Sheng, Y. Gao, X. Sun, K. Li, C. Shen (2022), "Efficient decoder-free object detection with transformers", In: *Proc. European Conf. Computer Vision (ECCV'22)*.
- 21 T. He, W. Yin, C. Shen, A. van den Hengel (2022), "PointInst3D: segmenting 3D instances by points", In: *Proc. European Conf. Computer Vision (ECCV'22)*.
- 22 W. Mao, Y. Ge, C. Shen, Z. Tian, X. Wang, Z. Wang, A. van den Hengel (2022), "Poseur: direct human pose regression with transformers", In: *Proc. European Conf. Computer Vision (ECCV'22)*.
- 23 S. Jia, B. Yin, T. Yao, S. Ding, C. Shen, X. Yang, C. Ma (2022), "Adv-attribute: inconspicuous and transferable adversarial attack on face recognition", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS'22)*.
- 24 B. Zhang, Z. Tian, Q. Tang, X. Chu, X. Wei, C. Shen, Y. Liu (2022), "SegViT: semantic segmentation with plain vision transformers", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS'22)*.
- 25 C. Lin, A. Wu, J. Liang, J. Zhang, W. Ge, W. Zheng, C. Shen (2022), "Text-adaptive multiple visual prototype matching for video-text retrieval", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS'22)*.
- 26 Z. Tian, X. Chu, X. Wang, X. Wei, C. Shen (2022), "Fully convolutional one-stage 3D object detection on LiDAR range images", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS'22)*.
- 27 C. Zhang, W. Yin, Z. Wang, G. Yu, B. Fu, C. Shen (2022), "Hierarchical normalization for robust monocular depth estimation", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS'22)*.
- 28 J. Liang, E. Zhang, J. Zhang, C. Shen (2022), "Multi-dataset training of transformers for robust action recognition", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS'22)*.
- 29 Y. Gao, J. Liu, Z. Xu, J. Zhang, K. Li, R. Ji, C. Shen (2022), "PyramidCLIP: hierarchical feature alignment for vision-language model pretraining", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS'22)*.
- 30 J. Zhang, C. Chen, B. Li, L. Lyu, S. Wu, S. Ding, C. Shen, C. Wu (2022), "DENSE: data-free one-shot federated learning", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS'22)*.
- 31 2021 J. Zhang, Y. Xie, Y. Xia, C. Shen (2021), "DoDNet: learning to segment multi-organ and tumors from multiple partially labeled datasets", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 32 Z. Tian, C. Shen, X. Wang, H. Chen (2021), "BoxInst: high-performance instance segmentation with box annotations", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 33 P. Chen, J. Liu, B. Zhuang, M. Tan, C. Shen (2021), "AQD: towards accurate quantized object detection", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 34 W. Mao, Z. Tian, X. Wang, C. Shen (2021), "FCPose: fully convolutional multi-person pose estimation with dynamic instance-aware convolutions", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 35 Y. Liu, W. Yin, Y. Chen, H. Chen, C. Shen (2021), "Generic perceptual loss for modelling structured output dependencies", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 36 W. Yin, J. Zhang, O. Wang, S. Niklaus, L. Mai, S. Chen, C. Shen (2021), "Learning to recover 3D scene shape from a single image", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 37 T. He, C. Shen, A. van den Hengel (2021), "DyCo3D: robust instance segmentation of 3d point clouds through dynamic convolution", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 38 Y. Dai, H. Lu, C. Shen (2021), "Learning affinity-aware upsampling for deep image matting", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 39 D. Ruan, Y. Yan, S. Lai, Z. Chai, C. Shen, H. Wang (2021), "Feature decomposition and reconstruction learning for effective facial expression recognition", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 40 Y. Shu, Y. Yan, S. Chen, J. Xue, C. Shen, H. Wang (2021), "Learning spatial-semantic relationship for facial attribute recognition with limited labeled data", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'21)*.
- 41 Y. Wang, Z. Xu, X. Wang, C. Shen, B. Cheng, H. Shen, H. Xia (2021), "End-to-end video instance

segmentation with Transformers”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’21)*.

42 R. Li, G. Lin, T. He, F. Liu, C. Shen (2021), “HCRF-Flow: scene flow from point clouds with continuous high-order CRFs and position-aware flow embedding”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’21)*.

43 X. Wang, R. Zhang, C. Shen, T. Kong, L. Li (2021), “Dense contrastive learning for self-supervised visual pre-training”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’21)*.

44 D. Guo, Y. Shao, Y. Cui, Z. Wang, L. Zhang, C. Shen (2021), “Graph attention tracking”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’21)*.

45 P. Chen, B. Zhuang, C. Shen (2021), “FATNN: fast and accurate ternary neural networks”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’21)*.

46 C. Yan, G. Pang, J. Jiao, X. Bai, X. Feng, C. Shen (2021), “Occluded person re-identification with single-scale global representations”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’21)*.

47 C. Yan, G. Pang, L. Wang, J. Jiao, X. Feng, C. Shen, J. Li (2021), “BV-Person: a large-scale dataset for bird-view person re-identification”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’21)*.

48 J. Yuan, Y. Liu, C. Shen, Z. Wang, H. Li (2021), “A simple baseline for semi-supervised semantic segmentation with strong data augmentation”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’21)*.

49 C. Shu, Y. Liu, J. Gao, L. Xu, C. Shen (2021), “Channel-wise knowledge distillation for dense prediction”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’21)*.

50 C. Zhang, H. Ding, G. Lin, R. Li, C. Wang, C. Shen (2021), “Meta navigator: search for a good adaptation policy for few-shot learning”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’21)*.

51 X. Chu, Z. Tian, Y. Wang, B. Zhang, H. Ren, X. Wei, H. Xia, C. Shen (2021), “Twins: revisiting the design of spatial attention in vision transformers”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’21)*.

52 B. Zhang, Y. Liu, Z. Tian, C. Shen (2021), “Dynamic neural representational decoders for high-resolution semantic segmentation”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’21)*.

53 2020 Y. Qi, Q. Wu, P. Anderson, X. Wang, W. Wang, C. Shen, A. van den Hengel (2020), “REVERIE: remote embodied visual referring expression in real indoor environments”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

54 C. Yu, J. Wang, C. Gao, G. Yu, C. Shen, N. Sang (2020), “Context prior for scene segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

55 R. Zhang, Z. Tian, C. Shen, M. You, Y. Yan (2020), “Mask encoding for single shot instance segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

56 X. Wang, Y. Liu, C. Shen, C. Ng, C. Luo, L. Jin, C. Chan, A. van den Hengel, L. Wang (2020), “On the general value of evidence, and bilingual scene-text visual question answering”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

57 B. Zhuang, L. Liu, M. Tan, C. Shen, I. Reid (2020), “Training quantized neural networks with a full-precision auxiliary module”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

58 Y. Liu, H. Chen, C. Shen, T. He, L. Jin, L. Wang (2020), “ABCNet: arbitrarily-shaped scene text spotting with adaptive Bezier-curve network in real time”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

59 H. Chen, K. Sun, Z. Tian, C. Shen, Y. Huang, Y. Yan (2020), “BlendMask: top-down meets bottom-up for instance segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

60 E. Xie, P. Sun, X. Song, W. Wang, X. Liu, D. Liang, C. Shen, P. Luo (2020), “PolarMask: single shot instance segmentation with polar representation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

61 C. Zhang, Y. Cai, G. Lin, C. Shen (2020), “DeepEMD: few-shot image classification with differentiable earth mover’s distance and structured classifiers”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

62 N. Wang, Y. Gao, H. Chen, P. Wang, Z. Tian, C. Shen, Y. Zhang (2020), “NAS-FCOS: fast neural architecture search for object detection”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

63 H. Zhang, Y. Li, H. Chen, C. Shen (2020), “Memory-efficient hierarchical neural architecture search for image denoising”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

64 G. Pang, C. Yan, C. Shen, A. van den Hengel, X. Bai (2020), “Self-trained deep ordinal regression for end-to-end video anomaly detection”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’20)*.

65 H. Wang, Q. Wu, C. Shen (2020), “Soft expert reward learning for vision-and-language navigation”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.

- 66 W. Wang, E. Xie, X. Liu, W. Wang, D. Liang, C. Shen, X. Bai (2020), “Scene text image super-resolution in the wild”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 67 W. Wang, X. Liu, X. Ji, E. Xie, D. Liang, Z. Yang, T. Lu, C. Shen, P. Luo (2020), “AE TextSpotter: learning visual and linguistic representation for ambiguous text spotting”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 68 E. Xie, W. Wang, W. Wang, M. Ding, C. Shen, P. Luo (2020), “Segmenting transparent objects in the wild”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 69 Z. Tian, C. Shen, H. Chen (2020), “Conditional convolutions for instance segmentation”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 70 X. Wang, T. Kong, C. Shen, Y. Jiang, L. Li (2020), “SOLO: segmenting objects by locations”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 71 T. He, D. Gong, Z. Tian, C. Shen (2020), “Learning and memorizing representative prototypes for 3D point cloud semantic and instance segmentation”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 72 C. Yu, Y. Liu, C. Gao, C. Shen, N. Sang (2020), “Representative graph neural network”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 73 L. Liu, H. Lu, H. Zou, H. Xiong, Z. Cao, C. Shen (2020), “Weighing counts: sequential crowd counting by reinforcement learning”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 74 Y. Liu, C. Shen, C. Yu, J. Wang (2020), “Efficient semantic video segmentation with per-frame inference”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 75 T. He, Y. Liu, C. Shen, X. Wang, C. Sun (2020), “Instance-aware embedding for point cloud instance segmentation”, In: *Proc. European Conf. Computer Vision (ECCV’20)*.
- 76 X. Wang, R. Zhang, T. Kong, L. Li, C. Shen (2020), “SOLOv2: dynamic and fast instance segmentation”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’20)*.
- 77 2019 P. Wang, Q. Wu, J. Cao, C. Shen, L. Gao, A. vanden Hengel (2019), “Neighbourhood watch: referring expression comprehension via language-guided graph attention networks”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 78 V. Nekrasov, H. Chen, C. Shen, I. Reid (2019), “Fast neural architecture search of compact semantic segmentation models via auxiliary cells”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 79 H. Li, P. Wang, C. Shen, A. van den Hengel (2019), “Visual question answering as reading comprehension”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 80 B. Zhuang, C. Shen, M. Tan, L. Liu, I. Reid (2019), “Structured binary neural networks for accurate image classification and semantic segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 81 X. Wang, S. Liu, X. Shen, C. Shen, J. Jia (2019), “Associatively segmenting instances and semantics in point clouds”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 82 C. Zhang, G. Lin, F. Liu, R. Yao, C. Shen (2019), “CANet: class-agnostic segmentation networks with iterative refinement and attentive few-shot learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 83 J. Zhang, Q. Wu, J. Zhang, C. Shen, J. Lu (2019), “Mind your neighbours: image annotation with metadata neighbourhood graph co-attention networks”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 84 Z. Tian, T. He, C. Shen, Y. Yan (2019), “Decoders matter for semantic segmentation: data-dependent decoding enables flexible feature aggregation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 85 T. He, C. Shen, Z. Tian, D. Gong, C. Sun, Y. Yan (2019), “Knowledge adaptation for efficient semantic segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 86 Q. Yan, D. Gong, Q. Shi, A. van den Hengel, C. Shen, I. Reid, Y. Zhang (2019), “Attention-guided network for ghost-free high dynamic range imaging”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’19)*.
- 87 W. Wang, E. Xie, X. Song, Y. Zang, W. Wang, T. Lu, G. Yu, C. Shen (2019), “Efficient and accurate arbitrary-shaped text detection with pixel aggregation network”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’19)*.
- 88 H. Lu, Y. Dai, C. Shen, S. Xu (2019), “Indices matter: learning to index for deep image matting”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’19)*.
- 89 X. Zhang, J. Cao, C. Shen, M. You (2019), “Self-training with progressive augmentation for unsupervised cross-domain person re-identification”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’19)*.

90 W. Yin, Y. Liu, C. Shen, Y. Yan (2019), “Enforcing geometric constraints of virtual normal for depth prediction”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’19)*.

91 H. Zhang, C. Shen, Y. Li, Y. Cao, Y. Liu, Y. Yan (2019), “Exploiting temporal consistency for real-time video depth estimation”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’19)*.

92 Z. Tian, C. Shen, H. Chen, T. He (2019), “FCOS: fully convolutional one-stage object detection”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’19)*.

93 H. Xiong, H. Lu, C. Liu, L. Liu, Z. Cao, C. Shen (2019), “From open set to closed set: counting objects by spatial divide-and-conquer”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’19)*.

94 J. Bian, Z. Li, N. Wang, H. Zhan, C. Shen, M. Cheng, I. Reid (2019), “Unsupervised scale-consistent depth and ego-motion learning from monocular video”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’19)*.

95 J. Cao, L. Mo, Y. Zhang, K. Jia, C. Shen, M. Tan (2019), “Multi-marginal wasserstein GAN”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’19)*.

96 2018 T. Shen, G. Lin, C. Shen, I. Reid (2018), “Bootstrapping the performance of webly supervised semantic segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

97 K. Xian, C. Shen, Z. Cao, H. Lu, Y. Xiao, R. Li, Z. Luo (2018), “Monocular relative depth perception with web stereo data supervision”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

98 Y. Song, C. Ma, X. Wu, L. Gong, L. Bao, W. Zuo, C. Shen, R. Lau, M. Yang (2018), “VITAL: visual tracking via adversarial learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

99 T. He, Z. Tian, W. Huang, C. Shen, Y. Qiao, C. Sun (2018), “An end-to-end textspotter with explicit alignment and attention”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

100 Q. Wu, P. Wang, C. Shen, I. Reid, A. van den Hengel (2018), “Are you talking to me? reasoned visual dialog generation through adversarial learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

101 B. Zhuang, Q. Wu, C. Shen, I. Reid, A. van den Hengel (2018), “Parallel attention: a unified framework for visual object discovery through dialogs and queries”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

102 B. Zhuang, C. Shen, M. Tan, L. Liu, I. Reid (2018), “Towards effective low-bitwidth convolutional neural networks”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

103 C. Ma, C. Shen, A. Dick, Q. Wu, P. Wang, A. van den Hengel, I. Reid (2018), “Visual question answering with memory-augmented networks”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

104 X. Wang, T. Xiao, Y. Jiang, S. Shao, J. Sun, C. Shen (2018), “Repulsion loss: detecting pedestrians in a crowd”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

105 Y. Chen, Y. Tai, X. Liu, C. Shen, J. Yang (2018), “FSRNet: end-to-end learning face super-resolution with facial priors”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’18)*.

106 J. Zhang, Q. Wu, C. Shen, J. Zhang, J. Lu, A. van den Hengel (2018), “Goal-oriented visual question generation via intermediate rewards”, In: *Proc. European Conf. Computer Vision (ECCV’18)*.

107 R. Deng, C. Shen, S. Liu, H. Wang, X. Liu (2018), “Learning to predict crisp boundaries”, In: *Proc. European Conf. Computer Vision (ECCV’18)*.

108 J. Cao, Y. Guo, Q. Wu, C. Shen, J. Huang, M. Tan (2018), “Adversarial learning with local coordinate coding”, In: *Proc. Int’l Conf. Machine Learning (ICML’18)*.

109 2017 P. Wang, Q. Wu, C. Shen, A. van den Hengel (2017), “The VQA-machine: learning how to use existing vision algorithms to answer new questions”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’17)*.

110 G. Lin, A. Milan, C. Shen, I. Reid (2017), “RefineNet: multi-path refinement networks for high-resolution semantic segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’17)*.

111 Y. Li, G. Lin, B. Zhuang, L. Liu, C. Shen, A. van den Hengel (2017), “Sequential person recognition in photo albums with a recurrent network”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’17)*.

112 D. Gong, J. Yang, L. Liu, Y. Zhang, I. Reid, C. Shen, A. van den Hengel, Q. Shi (2017), “From motion blur to motion flow: a deep learning solution for removing heterogeneous motion blur”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’17)*.

113 B. Zhuang, L. Liu, Y. Li, C. Shen, I. Reid (2017), “Attend in groups: a weakly-supervised deep learning framework for learning from web data”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’17)*.

114 P. Wang, L. Liu, C. Shen, Z. Huang, A. van den Hengel, H. Shen (2017), “Multi-attention network for

one shot learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’17)*.

H. Lu, L. Zhang, Z. Cao, W. Wei, K. Xian, C. Shen, A. van den Hengel (2017), “When unsupervised domain adaptation meets tensor representations”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’17)*.

B. Zhuang, L. Liu, C. Shen, I. Reid (2017), “Towards context-aware interaction recognition”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’17)*.

Y. Chen, C. Shen, X. Wei, L. Liu, J. Yang (2017), “Adversarial PoseNet: a structure-aware convolutional network for human pose estimation”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’17)*.

W. Liu, X. Chen, C. Shen, Z. Liu, J. Yang (2017), “Semi-global weighted least squares in image filtering”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’17)*.

H. Li, P. Wang, C. Shen (2017), “Towards end-to-end text spotting with convolutional recurrent neural networks”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’17)*.

Q. Wu, P. Wang, C. Shen, A. Dick, A. van den Hengel (2016), “Ask me anything: free-form visual question answering based on knowledge from external sources”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’16)*.

Q. Wu, C. Shen, L. Liu, A. Dick, A. van den Hengel (2016), “What value do explicit high level concepts have in vision to language problems”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’16)*.

P. Wang, L. Liu, C. Shen, Z. Huang, A. van den Hengel, H. Shen (2016), “What’s wrong with that object? identifying irregular object from images by modelling the detection score distribution”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’16)*.

G. Lin, C. Shen, A. van dan Hengel, I. Reid (2016), “Efficient piecewise training of deep structured models for semantic segmentation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’16)*.

B. Zhuang, G. Lin, C. Shen, I. Reid (2016), “Fast training of triplet-based deep binary embedding networks”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’16)*.

R. Qiao, L. Liu, C. Shen, A. van den Hengel (2016), “Less is more: zero-shot learning from online textual documents with noise suppression”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’16)*.

L. Zhang, W. Wei, Y. Zhang, C. Shen, A. van den Hengel, Q. Shi (2016), “Cluster sparsity field for hyperspectral imagery denoising”, In: *Proc. European Conf. Computer Vision (ECCV’16)*.

Y. Li, L. Liu, C. Shen, A. van den Hengel (2016), “Image co-localization by mimicking a good detector’s confidence score distribution”, In: *Proc. European Conf. Computer Vision (ECCV’16)*.

X. Mao, C. Shen, Y. Yang (2016), “Image restoration using very deep fully convolutional encoder-decoder networks with symmetric skip connections”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’16)*.

Y. Li, L. Liu, C. Shen, A. van den Hengel (2015), “Mid-level deep pattern mining”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’15)*.

F. Liu, C. Shen, G. Lin (2015), “Deep convolutional neural fields for depth estimation from a single image”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’15)*.

F. Shen, C. Shen, W. Liu, H. Shen (2015), “Supervised discrete hashing”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’15)*.

L. Liu, C. Shen, A. van den Hengel (2015), “The treasure beneath convolutional layers: cross convolutional layer pooling for image classification”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’15)*.

P. Wang, C. Shen, A. van den Hengel (2015), “Efficient SDP inference for fully-connected CRFs based on low-rank decomposition”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’15)*.

S. Paisitkriangkrai, C. Shen, A. van den Hengel (2015), “Learning to rank in person re-identification with metric ensembles”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’15)*.

M. Tan, Q. Shi, A. van den Hengel, C. Shen, J. Gao, F. Hu, Z. Zhang (2015), “Learning graph structure for multi-label image classification via clique generation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’15)*.

B. Li, C. Shen, Y. Dai, A. van den Hengel, M. He (2015), “Depth and surface normal estimation from monocular images using regression on deep features and hierarchical CRFs”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’15)*.

L. Zhang, W. Wei, Y. Zhang, F. Li, C. Shen, Q. Shi (2015), “Hyperspectral compressive sensing using manifold-structured sparsity prior”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’15)*.

G. Lin, C. Shen, I. Reid, A. van den Hengel (2015), “Deeply learning the messages in message passing inference”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’15)*.

- 139 2014 G. Lin, C. Shen, Q. Shi, A. van den Hengel, D. Suter (2014), “Fast supervised hashing with decision trees for high-dimensional data”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’14)*.
- 140 G. Lin, C. Shen, J. Wu (2014), “Optimizing ranking measures for compact binary code learning”, In: *Proc. European Conf. Computer Vision (ECCV’14)*.
- 141 S. Paisitkriangkrai, C. Shen, A. van den Hengel (2014), “Strengthening the effectiveness of pedestrian detection with spatially pooled features”, In: *Proc. European Conf. Computer Vision (ECCV’14)*.
- 142 L. Liu, C. Shen, L. Wang, A. van den Hengel, C. Wang (2014), “Encoding high dimensional local features by sparse coding based Fisher vectors”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’14)*.
- 143 2013 F. Shen, C. Shen, Q. Shi, A. van den Hengel, Z. Tang (2013), “Inductive hashing on manifolds”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’13)*.
- 144 X. Li, C. Shen, A. Dick, A. van den Hengel (2013), “Learning compact binary codes for visual tracking”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’13)*.
- 145 Z. Wang, Q. Shi, C. Shen, A. van den Hengel (2013), “Bilinear programming for human activity recognition with unknown MRF graphs”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’13)*.
- 146 P. Wang, C. Shen, A. van den Hengel (2013), “A fast semidefinite approach to solving binary quadratic problems”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’13)*.
- 147 R. Yao, Q. Shi, C. Shen, Y. Zhang, A. van den Hengel (2013), “Part-based visual tracking with online latent structural learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’13)*.
- 148 G. Lin, C. Shen, D. Suter, A. van den Hengel (2013), “A general two-step approach to learning-based hashing”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’13)*.
- 149 S. Paisitkriangkrai, C. Shen, A. van den Hengel (2013), “Efficient pedestrian detection by directly optimizing the partial area under the ROC curve”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’13)*.
- 150 X. Li, Y. Li, C. Shen, A. Dick, A. van den Hengel (2013), “Contextual hypergraph modeling for salient object detection”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’13)*.
- 151 M. Harandi, C. Sanderson, C. Shen, B. Lovell (2013), “Dictionary learning and sparse coding on Grassmann manifolds: an extrinsic solution”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’13)*.
- 152 X. Li, G. Lin, C. Shen, A. van den Hengel, A. Dick (2013), “Learning hash functions using column generation”, In: *Proc. Int’l Conf. Machine Learning (ICML’13)*.
- 153 2012 X. Li, C. Shen, Q. Shi, A. Dick, A. van den Hengel (2012), “Non-sparse linear representations for visual tracking with online reservoir metric learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’12)*: 1760–1767.
- 154 S. Paisitkriangkrai, C. Shen, A. van den Hengel (2012), “Sharing features in multi-class boosting via group sparsity”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’12)*: 2128–2135.
- 155 R. Yao, Q. Shi, C. Shen, Y. Zhang, A. van den Hengel (2012), “Robust tracking with weighted online structured learning”, In: *Proc. European Conf. Computer Vision (ECCV’12)*: 158–172.
- 156 Q. Shi, C. Shen, R. Hill, A. van den Hengel (2012), “Is margin preserved after random projection?”, In: *Proc. Int’l Conf. Machine Learning (ICML’12)*.
- 157 2011 C. Shen, Z. Hao (2011), “A direct formulation for totally-corrective multi-class boosting”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’11)*: 2585–2592.
- 158 L. Liu, L. Wang, C. Shen (2011), “A generalized probabilistic framework for compact codebook creation”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’11)*: 1537–1544.
- 159 Q. Shi, A. Eriksson, A. van den Hengel, C. Shen (2011), “Is face recognition really a compressive sensing problem?”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’11)*: 553–560.
- 160 H. Li, C. Shen, Q. Shi (2011), “Real-time visual tracking using compressive sensing”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’11)*: 1305–1312.
- 161 C. Shen, J. Kim, L. Wang (2011), “A scalable dual approach to semidefinite metric learning”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’11)*: 2601–2608.
- 162 X. Li, A. Dick, H. Wang, C. Shen, A. van den Hengel (2011), “Graph mode-based contextual kernels for robust SVM tracking”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’11)*: 1156–1163.
- 163 2010 Q. Shi, H. Li, C. Shen (2010), “Rapid face recognition using hashing”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’10)*: 2753–2760.
- 164 C. Shen, P. Wang, H. Li (2010), “LACBoost and FisherBoost: optimally building cascade classifiers”, In: *Proc. European Conf. Computer Vision (ECCV’10)*: 608–621.
- 165 2009 S. Paisitkriangkrai, C. Shen, J. Zhang (2009), “Efficiently training a better visual detector with sparse eigenvectors”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’09)*: 1129–1136.

- 166 C. Shen, J. Kim, L. Wang, A. van den Hengel (2009), “Positive semidefinite metric learning with boosting”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’09)*.
- 167 2008 L. Wang, L. Zhou, C. Shen (2008), “A fast algorithm for creating a compact and discriminative visual codebook”, In: *Proc. European Conf. Computer Vision (ECCV’08)*: 719–732.
- 168 C. Shen, A. Welsh, L. Wang (2008), “PSDBoost: matrix-generation linear programming for positive semidefinite matrices learning”, In: *Proc. Advances in Neural Information Processing Systems (NeurIPS’08)*.
- 169 2007 Q. Nguyen, A. Robles-Kelly, C. Shen (2007), “Kernel-based tracking from a probabilistic viewpoint”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR’07)*.
- 170 2005 C. Shen, M. Brooks, A. van den Hengel (2005), “Fast global kernel density mode seeking with application to localisation and tracking”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’05)*: 1516–1523.

REFEREED MAJOR CONFERENCE ARTICLES IN ARTIFICIAL INTELLIGENCE AND ROBOTICS (34)

- *Proc. AAAI Conf. Artificial Intelligence (AAAI)*
 - *Proc. Int. Joint Conf. Artificial Intelligence (IJCAI)*
 - *Proc. ACM SIGKDD Conf. Knowledge Discovery and Data Mining (KDD)*
 - *Proc. IEEE Int. Conf. Robotics & Automation (ICRA)*
 - *Proc. British Machine Vision Conf. (BMVC)*
 - *Proc. ACM Int. Conf. Multimedia (ACM MM)*
 - *Proc. Int. Conf. Medical Image Computing and Computer Assisted Intervention (MICCAI)*
- 1 2023 Y. Qin, X. Chen, C. Chen, Y. Shen, B. Ren, Y. Gu, J. Yang, C. Shen (2023), “FoPro: few-shot guided robust webly-supervised prototypical learning”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’23)*.
- 2 Y. Ge, Q. Zhou, X. Wang, Z. Wang, H. Li, C. Shen (2023), “Point-Teaching: weakly semi-supervised object detection with point annotations”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’23)*.
- 3 G. Pang, C. Shen, H. Jin, A. van den Hengel (2023), “Deep weakly-supervised anomaly detection”, In: *Proc. ACM SIGKDD Conf. Knowledge Discovery and Data Mining (KDD’23)*.
- 4 2022 D. Peng, X. Wang, Y. Liu, J. Zhang, M. Huang, S. Lai, S. Zhu, J. Li, D. Lin, C. Shen, X. Bai, L. Jin (2022), “SPTS: single-point text spotting”, In: *Proc. ACM Int’l Conf. Multimedia (ACMMM’22)*.
- 5 2021 X. Zhang, X. Wang, J. Bian, C. Shen, M. You (2021), “Diverse knowledge distillation for end-to-end person search”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’21)*.
- 6 C. Liu, P. Chen, B. Zhuang, C. Shen, B. Zhang, W. Ding (2021), “SA-BNN: state-aware binary neural network”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’21)*.
- 7 H. Wang, P. Chen, B. Zhuang, C. Shen (2021), “Fully quantized image super-resolution networks”, In: *Proc. ACM Int’l Conf. Multimedia (ACMMM’21)*.
- 8 Y. Zhuge, C. Shen (2021), “Deep reasoning network for few-shot semantic segmentation”, In: *Proc. ACM Int’l Conf. Multimedia (ACMMM’21)*.
- 9 L. Kong, C. Shen, J. Yang (2021), “FastFlowNet: a lightweight network for fast optical flow estimation”, In: *Proc. Int’l Conf. Robotics and Automation (ICRA’21)*.
- 10 G. Pang, A. van den Hengel, C. Shen, L. Cao (2021), “Toward deep supervised anomaly detection: reinforcement learning from partially labeled anomaly data”, In: *Proc. ACM SIGKDD Conf. Knowledge Discovery and Data Mining (KDD’21)*.
- 11 Y. Xie, J. Zhang, C. Shen, Y. Xia (2021), “CoTr: efficient 3D medical image segmentation by bridging CNN and transformer”, In: *Proc. Int’l Conf. Medical Image Computing and Computer Assisted Intervention (MICCAI’21)*.
- 12 2020 D. Teney, P. Wang, J. Cao, L. Liu, C. Shen, A. van den Hengel (2020), “V-PROM: a benchmark for visual reasoning using visual progressive matrices”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’20)*.
- 13 X. Wang, W. Yin, T. Kong, Y. Jiang, L. Li, C. Shen (2020), “Task-aware monocular depth estimation for 3D object detection”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’20)*.
- 14 H. Wang, G. Pang, C. Shen, C. Ma (2020), “Unsupervised representation learning by predicting random distances”, In: *Proc. Int’l Joint Conferences on Artificial Intelligence (IJCAI’20)*.
- 15 Y. Xie, J. Zhang, Z. Liao, C. Shen, J. Verjans, Y. Xia (2020), “Pairwise relation learning for semi-supervised gland segmentation”, In: *Proc. Int’l Conf. Medical Image Computing and Computer Assisted Intervention (MICCAI’20)*.
- 16 2019 H. Li, P. Wang, C. Shen, G. Zhang (2019), “Show, attend and read: a simple and strong baseline for irregular text recognition”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’19)*.
- 17 C. Yan, G. Pang, X. Bai, C. Shen, J. Zhou, E. Hancock (2019), “Deep hashing by discriminating hard examples”, In: *Proc. ACM Int’l Conf. Multimedia (ACMMM’19)*.
- 18 V. Nekrasov, T. Dharmasiri, A. Spek, T. Drummond, C. Shen, I. Reid (2019), “Real-time joint semantic

segmentation and depth estimation using asymmetric annotations”, In: *Proc. Int’l Conf. Robotics and Automation (ICRA’19)*.

- 19 J. Zhang, Y. Xie, P. Zhang, H. Chen, Y. Xia, C. Shen (2019), “Light-weight hybrid convolutional network for liver tumor segmentation”, In: *Proc. Int’l Joint Conf. Artificial Intelligence (IJCAI’19)*.
- 20 G. Pang, C. Shen, A. van den Hengel (2019), “Deep anomaly detection with deviation networks”, In: *Proc. ACM SIGKDD Conf. Knowledge Discovery and Data Mining (KDD’19)*.
- 21 Y. Xie, H. Lu, J. Zhang, C. Shen, Y. Xia (2019), “Deep segmentation-emendation model for gland instance segmentation”, In: *Proc. Int’l Conf. Medical Image Computing and Computer Assisted Intervention (MICCAI’19)*.
- 22 2018 J. Zhang, Q. Wu, J. Zhang, C. Shen, J. Lu (2018), “Kill two birds with one stone: weakly-supervised neural network for image annotation and tag refinement”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’18)*.
- 23 B. Zhuang, Q. Wu, C. Shen, I. Reid, A. van den Hengel (2018), “HCVRD: a benchmark for large-scale human-centered visual relationship detection”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’18)*.
- 24 V. Nekrasov, C. Shen, I. Reid (2018), “Light-weight refinenet for real-time semantic segmentation”, In: *Proc. British Machine Vision Conference (BMVC’18)*.
- 25 M. Cai, C. Shen, I. Reid (2018), “A hybrid probabilistic model for camera relocation”, In: *Proc. British Machine Vision Conference (BMVC’18)*.
- 26 P. Zhang, W. Liu, H. Lu, C. Shen (2018), “Salient object detection by lossless feature reflection”, In: *Proc. Int’l Joint Conf. Artificial Intelligence (IJCAI’18)*.
- 27 2017 R. Qiao, L. Liu, C. Shen, A. van den Hengel (2017), “Visually aligned word embeddings for improving zero-shot learning”, In: *Proc. British Machine Vision Conference (BMVC’17)*.
- 28 T. Shen, G. Lin, L. Liu, C. Shen, I. Reid (2017), “Weakly supervised semantic segmentation based on co-segmentation”, In: *Proc. British Machine Vision Conference (BMVC’17)*.
- 29 Z. Chen, A. Jacobson, N. Sunderhauf, B. Upcroft, L. Liu, C. Shen, I. Reid, M. Milford (2017), “Deep learning features at scale for visual place recognition”, In: *Proc. IEEE Int’l Conf. Robotics and Automation (ICRA’17)*.
- 30 T. Shen, G. Lin, C. Shen, I. Reid (2017), “Learning multi-level region consistency with dense multi-label networks for semantic segmentation”, In: *Proc. Int’l Joint Conf. Artificial Intelligence (IJCAI’17)*.
- 31 X. Wei, C. Zhang, Y. Li, C. Xie, J. Wu, C. Shen, Z. Zhou (2017), “Deep descriptor transforming for image co-localization”, In: *Proc. Int’l Joint Conf. Artificial Intelligence (IJCAI’17)*.
- 32 P. Wang, Q. Wu, C. Shen, A. van den Hengel, A. Dick (2017), “Explicit knowledge-based reasoning for visual question answering”, In: *Proc. Int’l Joint Conf. Artificial Intelligence (IJCAI’17)*.
- 33 2011 K. Park, C. Shen, Z. Hao, J. Kim (2011), “Efficiently learning a distance metric for large margin nearest neighbor classification”, In: *Proc. AAAI Conf. Artificial Intelligence (AAAI’11)*: 453–458.
- 34 2010 L. Zhou, L. Wang, C. Shen, N. Barnes (2010), “Hippocampal shape classification using redundancy constrained feature selection”, In: *Proc. Int’l Conf. Medical Image Computing and Computer Assisted Intervention (MICCAI’10)*: 266–273.

REFEREED OTHER MISCELLANEOUS CONFERENCE ARTICLES (42)

- 1 2018 R. Li, K. Xian, C. Shen, Z. Cao, H. Lu, L. Hang (2018), “Deep attention-based classification network for robust depth prediction”, In: *Proc. Asian Conf. Computer Vision (ACCV’18)*.
- 2 X. Wei, C. Zhang, L. Liu, C. Shen, J. Wu (2018), “Coarse-to-fine: a RNN-based hierarchical attention model for vehicle re-identification”, In: *Proc. Asian Conf. Computer Vision (ACCV’18)*.
- 3 L. Dong, Y. Gan, X. Mao, Y. Yang, C. Shen (2018), “Learning deep representations using convolutional auto-encoders with symmetric skip connections”, In: *Proc. IEEE Int’l Conf. Acoustics, Speech and Signal Processing (ICASSP’18)*.
- 4 2017 S. McMahon, T. Shen, N. Sunderhauf, I. Reid, C. Shen, M. Milford (2017), “Auxiliary tasks to improve trip hazard affordance detection”, In: *Proc. Australasian Conf. Robotics and Automation (ACRA’17)*.
- 5 2015 M. Milford, C. Shen, S. Lowry, N. Sunderhauf, S. Shirazi, G. Lin, F. Liu, E. Pepperell, C. Lerma, B. Upcroft, I. Reid (2015), “Sequence searching with deep-learned depth for condition- and viewpoint-invariant route-based place recognition”, In: *Proc. 6th Int’l Workshop on Computer Vision in Vehicle Technology, in conjunction with IEEE Conf. Computer Vision and Pattern Recognition (CVVT’15)*.
- 6 2013 G. Lin, C. Shen, A. van den Hengel (2013), “Approximate constraint generation for efficient structured boosting”, In: *Proc. IEEE Conf. Image Processing (ICIP’13)*.
- 7 Y. Li, C. Shen, W. Jia, A. van den Hengel (2013), “Leveraging surrounding context for scene text detection”, In: *Proc. IEEE Conf. Image Processing (ICIP’13)*.

- 8 C. Zhang, J. Bastian, C. Shen, A. van den Hengel, T. Shen (2013), “[Extended depth-of-field via focus stacking and graph cuts](#)”, In: *Proc. IEEE Conf. Image Processing (ICIP’13)*.
- 9 2012 G. Lin, C. Shen, A. van den Hengel, D. Suter (2012), “[Fast training of effective multi-class boosting using coordinate descent optimization](#)”, In: *Proc. Asian Conf. Computer Vision (ACCV’12)*: 782–795.
- 10 2011 L. Wang, C. Shen, R. Hartley (2011), “[On the optimality of sequential forward feature selection using class separability measure](#)”, In: *Proc. Int’l Conf. Digital Image Computing: Techniques and Applications (DICTA’11)*: 203–208.
- 11 T. Wang, X. He, C. Shen, N. Barnes (2011), “[Laplacian margin distribution boosting for learning from sparsely labeled data](#)”, In: *Proc. Int’l Conf. Digital Image Computing: Techniques and Applications (DICTA’11)*: 209–216.
- 12 2010 P. Wang, C. Shen, N. Barnes, H. Zheng, Z. Ren (2010), “[Asymmetric totally-corrective boosting for real-time object detection](#)”, In: *Proc. Asian Conf. Computer Vision (ACCV’10)*: 176–188.
- 13 Y. Zheng, C. Shen, R. Hartley, X. Huang (2010), “[Pyramid center-symmetric local binary, trinary patterns for effective pedestrian detection](#)”, In: *Proc. Asian Conf. Computer Vision (ACCV’10)*: 281–292.
- 14 Z. Hao, C. Shen, N. Barnes, B. Wang (2010), “[Totally-corrective multi-class boosting](#)”, In: *Proc. Asian Conf. Computer Vision (ACCV’10)*: 269–280.
- 15 S. Paisitkriangkrai, C. Shen, J. Zhang (2010), “[Face detection with effective feature extraction](#)”, In: *Proc. Asian Conf. Computer Vision (ACCV’10)*: 460–470.
- 16 H. Li, P. Wang, C. Shen (2010), “[Robust face recognition via accurate face alignment and sparse representation](#)”, In: *Proc. Int’l Conf. on Digital Image Computing: Techniques and Applications (DICTA’10)*: 262–269.
- 17 W. Wang, J. Zhang, C. Shen (2010), “[Improved human detection and classification in thermal images](#)”, In: *Proc. IEEE Int’l Conf. Image Processing (ICIP’10)*: 2313–2316.
- 18 P. Wang, C. Shen, H. Zheng, Z. Ren (2010), “[Training a multi-exit cascade with linear asymmetric classification for efficient object detection](#)”, In: *Proc. IEEE Int’l Conf. Image Processing (ICIP’10)*: 61–64.
- 19 2009 P. Wang, C. Shen, H. Zheng, Z. Ren (2009), “[A variant of the trace quotient formulation for dimensionality reduction](#)”, In: *Proc. 9th Asian Conf. Computer Vision (ACCV’09)*: 277–286.
- 20 J. Kim, C. Shen, L. Wang (2009), “[A scalable algorithm for learning a Mahalanobis distance metric](#)”, In: *Proc. 9th Asian Conf. Computer Vision (ACCV’09)*: 299–310.
- 21 Y. Dai, H. Li, M. He, C. Shen (2009), “[Smooth approximation of \$l_\infty\$ -norm for multi-view geometry](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’09)*: 339–346.
- 22 W. Wang, C. Shen, J. Zhang, S. Paisitkriangkrai (2009), “[A two-layer night-time vehicle detector](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’09)*: 162–167.
- 23 2008 Y. Lu, L. Wang, R. Hartley, H. Li, C. Shen (2008), “[Multi-view human motion capture with an improved deformation skin model](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’08)*: 420–427.
- 24 J. Kim, C. Shen, L. Wang (2008), “[Learning cascaded reduced-set SVMs using linear programming](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’08)*: 619–626.
- 25 H. Li, C. Shen (2008), “[Boosting the minimum margin: LPBoost vs. AdaBoost](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’08)*: 533–539.
- 26 C. Shen, H. Li, M. Brooks (2008), “[Self-calibrating cameras using semidefinite programming](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’08)*: 436–441.
- 27 C. Shen, S. Paisitkriangkrai, J. Zhang (2008), “[Face detection from few training examples](#)”, In: *Proc. IEEE Int’l Conf. Image Processing (ICIP’08)*: 2764–2767.
- 28 S. Paisitkriangkrai, C. Shen, J. Zhang (2008), “[Real-time pedestrian detection using a boosted multi-layer classifier](#)”, In: *Proc. 8th IEEE Int’l Workshop on Visual Surveillance, in conjunction with European Conf. Computer Vision (ECCVW’08)*.
- 29 2007 C. Shen, H. Li, M. Brooks (2007), “[A convex programming approach to the trace quotient problem](#)”, In: *Proc. 8th Asian Conf. Computer Vision (ACCV’07)*: 227–235.
- 30 H. Li, C. Shen, Z. Wen (2007), “[Color image labelling using linear programming](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’07)*: 239–244.
- 31 S. Paisitkriangkrai, C. Shen, J. Zhang (2007), “[An experimental evaluation of local features for pedestrian classification](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’07)*: 53–60.
- 32 C. Shen, H. Li, M. Brooks (2007), “[Feature extraction using sequential semidefinite programming](#)”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’07)*: 430–437.
- 33 H. Li, C. Shen (2007), “[Object-respecting colour image segmentation: an LP approach](#)”, In: *Proc. IEEE Int’l Conf. Image Processing (ICIP’07)*: 257–260.

- 34 2006 C. Shen, H. Li, M. Brooks (2006), “[Classification-based likelihood functions for Bayesian tracking](#)”, In: *Proc. IEEE Int’l Conf. Advanced Video and Signal based Surveillance (AVSS’06)*: 33–38.
- 35 H. Li, C. Shen (2006), “[An LMI approach for reliable PTZ camera self-calibration](#)”, In: *Proc. IEEE Int’l Conf. Advanced Video and Signal based Surveillance (AVSS’06)*: 79–84.
- 36 Q. Nguyen, A. Robles-Kelly, C. Shen (2006), “[Enhanced kernel-based tracking for monochromatic and thermographic video](#)”, In: *Proc. IEEE Int’l Conf. Advanced Video and Signal based Surveillance (AVSS’06)*: 28–33.
- 37 2005 C. Shen, A. van den Hengel, M. Brooks (2005), “[Visual tracking via efficient kernel discriminant subspace learning](#)”, In: *Proc. IEEE Int’l Conf. Image Processing (ICIP’05)*: 590–593.
- 38 C. Shen, M. Brooks, A. van den Hengel (2005), “[Augmented particle filtering for efficient visual tracking](#)”, In: *Proc. IEEE Int’l Conf. Image Processing (ICIP’05)*: 856–859.
- 39 C. Shen, M. Brooks (2005), “[Adaptive over-relaxed mean shift](#)”, In: *Proc. 8th Int’l Symposium on Signal Processing and Its Applications (ISSPA’05)*: 575–578.
- 40 2004 C. Shen, A. van den Hengel, A. Dick, M. Brooks (2004), “[Enhanced importance sampling: unscented auxiliary particle filtering for visual tracking](#)”, In: *Proc. Australian Joint Conf. Artificial Intelligence (AI’04)*: 180–191.
- 41 C. Shen, A. van den Hengel, A. Dick, M. Brooks (2004), “[2D articulated tracking with dynamic Bayesian networks](#)”, In: *Proc. Int’l Conf. Computer and Information Technology (CIT’04)*: 130–136.
- 42 2003 C. Shen, A. van den Hengel, A. Dick (2003), “[Probabilistic multiple cue integration for particle filter based tracking](#)”, In: *Proc. Int’l Conf. Digital Image Computing - Techniques and Applications (DICTA’03)*: 309–408.

GOOGLE SCHOLAR CITATION (h -index: 113; citations: 58041)

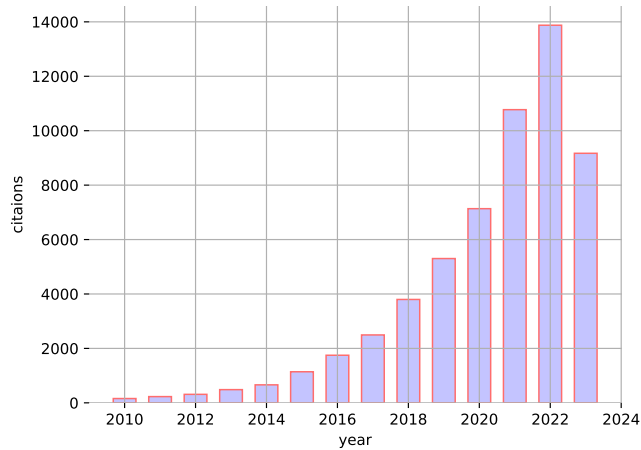


Figure 1: Google scholar citation as of 6-8-2023