

## Refereed Publications (314)

### REFEREED JOURNAL ARTICLES (131)

- 1 2020 Y. Dai, H. Lu, C. Shen (2020), “Towards light-weight portrait matting via parameter sharing”, *Computer Graphics Forum*.
- 2 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*.
- 3 Y. Zhao, Y. Liu, C. Shen, Y. Gao, S. Xiong (2020), “MobileFAN: transferring deep hidden representation for face alignment”, *Pattern Recognition*.
- 4 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*.
- 5 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*.
- 6 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*.
- 7 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*.
- 8 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*.
- 9 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*.
- 10 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*.
- 11 Y. Xie, J. Zhang, Y. Xia, C. Shen (2020), “A mutual bootstrapping model for automated skin lesion segmentation and classification”, *IEEE Trans. Medical Imaging*.
- 12 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*.
- 13 Y. Yan, Y. Huang, S. Chen, C. Shen, H. Wang (2020), “Joint deep learning of facial expression synthesis and recognition”, *IEEE Trans. Multimedia*.
- 14 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*.
- 15 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*.
- 16 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*.
- 17 W. Liu, P. Zhang, X. Huang, J. Yang, C. Shen, I. Reid (2020), “Real-time image smoothing via iterative least squares”, *ACM Trans. Graphics*.
- 18 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*.
- 19 H. Lu, Y. Dai, C. Shen, S. Xu (2020), “Index networks”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- 20 Y. Liu, C. Shen, J. Wang, C. Shen (2020), “Structured knowledge distillation for dense prediction”, *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- 21 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*.
- 22 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*.
- 23 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.
- 24 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*.
- 25 L. Zhang, W. Wei, Q. Shen, C. Shen, A. van den Hengel (2019), “Accurate imagery recovery using a multi-observation patch model”, *Information Sciences*.
- 26 J. Zhang, Q. Wu, J. Zhang, C. Shen, J. Lu, Q. Wu (2019), “Heritage image annotation via collective

knowledge”, *Pattern Recognition*.

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

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

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

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*.

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*.

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*.

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*.

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*.

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

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*.

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

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*.

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*.

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*.

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

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

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*.

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*.

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.

G. Lin, F. Liu, C. Shen, J. Wu, H. Shen (2017), “Structured learning of binary codes with column genera-

tion 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*.

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.

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

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

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*.

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

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

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.

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*.

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*.

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.

82 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*.

83 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*.

84 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*.

85 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.

86 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.

87 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.

88 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.

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

90 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.

91 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.

92 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.

93 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.

94 2014 F. Shen, C. Shen, R. Hill, A. van den Hengel, Z. Tang (2014), “Fast approximate  $l_\infty$  minimization: Speeding up robust regression”, *Computational Statistics and Data Analysis* 77: 25–37.

95 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*.

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

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

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

99 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.

100 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.

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

102 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.

103 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.

104 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.

105 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.

106 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.

107 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.

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



- 109 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.
- 110 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.
- 111 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.
- 112 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.
- 113 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.
- 114 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.
- 115 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.
- 116 C. Shen, P. Wang, F. Shen, H. Wang (2012), “UBoost: Boosting with the Universum”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 34: 825–832.
- 117 2011 C. Shen, S. Paisitkriangkrai, J. Zhang (2011), “Efficiently learning a detection cascade with sparse eigenvectors”, *IEEE Trans. Image Processing* 20: 22–35.
- 118 S. Paisitkriangkrai, C. Shen, J. Zhang (2011), “Incremental training of a detector using online sparse eigen-decomposition”, *IEEE Trans. Image Processing* 20: 213–226.
- 119 2010 H. Li, C. Shen (2010), “Interactive color image segmentation with linear programming”, *Machine Vision and Applications* 21: 403–412.
- 120 C. Shen, J. Kim, H. Wang (2010), “Generalized kernel-based visual tracking”, *IEEE Trans. Circuits and Systems for Video Technology* 20: 119–130.
- 121 C. Shen, J. Kim, L. Wang (2010), “Scalable large-margin Mahalanobis distance metric learning”, *IEEE Trans. Neural Networks* 21: 1524–1530.
- 122 L. Zhou, L. Wang, C. Shen (2010), “Feature selection with redundancy-constrained class separability”, *IEEE Trans. Neural Networks* 21: 853–858.
- 123 C. Shen, H. Li (2010), “Boosting through optimization of margin distributions”, *IEEE Trans. Neural Networks* 21: 659–666.
- 124 C. Shen, H. Li (2010), “On the dual formulation of boosting algorithms”, *IEEE Trans. Pattern Analysis and Machine Intelligence* 32: 2216–2231.
- 125 2008 S. Paisitkriangkrai, C. Shen, J. Zhang (2008), “Performance evaluation of local features in human classification and detection”, *IET Computer Vision* 2: 236–246.
- 126 C. Shen, H. Li, M. Brooks (2008), “Supervised dimensionality reduction via sequential semidefinite programming”, *Pattern Recognition* 41: 3644–3652.
- 127 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.
- 128 2007 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.
- 129 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.
- 130 2004 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.
- 131 2003 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 (118)

- *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)*

- 1 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).

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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

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)*.

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)*.

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)*.

Z. Tian, C. Shen, H. Chen (2020), "Conditional convolutions for instance segmentation", In: *Proc. European Conf. Computer Vision (ECCV'20)*.

X. Wang, T. Kong, C. Shen, Y. Jiang, L. Li (2020), "SOLO: segmenting objects by locations", In: *Proc. European Conf. Computer Vision (ECCV'20)*.

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)*.

C. Yu, Y. Liu, C. Gao, C. Shen, N. Sang (2020), "Representative graph neural network", In: *Proc. European Conf. Computer Vision (ECCV'20)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

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)*.

50 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)*.

51 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)*.

52 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)*.

53 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)*.

54 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)*.

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

56 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)*.

57 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)*.

58 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)*.

59 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)*.

60 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)*.

61 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)*.

62 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)*.

63 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)*.

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

65 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)*.

66 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)*.

67 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)*.

68 2016 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)*.

69 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)*.

70 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)*.

71 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)*.

72 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)*.

73 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)*.



- 74 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)*.
- 75 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)*.
- 76 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)*.
- 77 2015 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)*.
- 78 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)*.
- 79 F. Shen, C. Shen, W. Liu, H. Shen (2015), “Supervised discrete hashing”, In: *Proc. IEEE Conf. Computer  
Vision and Pattern Recognition (CVPR’15)*.
- 80 L. Liu, C. Shen, A. van den Hengel (2015), “The treasure beneath convolutional layers: cross convoluti-  
onal layer pooling for image classification”, In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition  
(CVPR’15)*.
- 81 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)*.
- 82 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)*.
- 83 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)*.
- 84 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)*.
- 85 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)*.
- 86 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)*.
- 87 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)*.
- 88 G. Lin, C. Shen, J. Wu (2014), “Optimizing ranking measures for compact binary code learning”, In: *Proc.  
European Conf. Computer Vision (ECCV’14)*.
- 89 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)*.
- 90 L. Liu, C. Shen, L. Wang, A. van den Hengel, C. Wang (2014), “Encoding high dimensional local fea-  
tures by sparse coding based Fisher vectors”, In: *Proc. Advances in Neural Information Processing Systems  
(NeurIPS’14)*.
- 91 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)*.
- 92 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)*.
- 93 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)*.
- 94 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)*.
- 95 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)*.
- 96 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)*.
- 97 S. Paisitkriangkrai, C. Shen, A. van den Hengel (2013), “Efficient pedestrian detection by directly optimiz-  
ing the partial area under the ROC curve”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’13)*.
- 98 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)*.
- 99 M. Harandi, C. Sanderson, C. Shen, B. Lovell (2013), “Dictionary learning and sparse coding on Grass-  
mann manifolds: an extrinsic solution”, In: *Proc. IEEE Int’l Conf. Computer Vision (ICCV’13)*.

100 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)*.

101 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.

102 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.

103 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.

104 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)*.

105 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.

106 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.

107 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.

108 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.

109 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.

110 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.

111 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.

112 C. Shen, P. Wang, H. Li (2010), “[LACBoost and FisherBoost: optimally building cascade classifiers](#)”, In: *Proc. European Conf. Computer Vision (ECCV’10)*: 608–621.

113 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.

114 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)*.

115 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.

116 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)*.

117 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)*.

118 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 (23)

- *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 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)*.

2 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)*.

3 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)*.

4 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)*.

- 5 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)*.
- 6 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)*.
- 7 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)*.
- 8 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)*.
- 9 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)*.
- 10 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)*.
- 11 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)*.
- 12 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)*.
- 13 V. Nekrasov, C. Shen, I. Reid (2018), “[Light-weight refinenet for real-time semantic segmentation](#)”, In: *Proc. British Machine Vision Conference (BMVC’18)*.
- 14 M. Cai, C. Shen, I. Reid (2018), “[A hybrid probabilistic model for camera relocation](#)”, In: *Proc. British Machine Vision Conference (BMVC’18)*.
- 15 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)*.
- 16 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)*.
- 17 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)*.
- 18 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)*.
- 19 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)*.
- 20 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)*.
- 21 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)*.
- 22 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.
- 23 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. Suenderhauf, S. Shirazi, G. Lin, F. Liu, E. Pepperell, C. Lerma, B. Upcroft, I. Reid (2015), “[Sequence searching with deep-learnt 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 pedes-](#)



trian classification”, In: *Proc. Int’l Conf. Digital Image Computing – Techniques and Applications (DICTA’07)*: 53–60.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 (*b*-index: 72; citations: 22615)

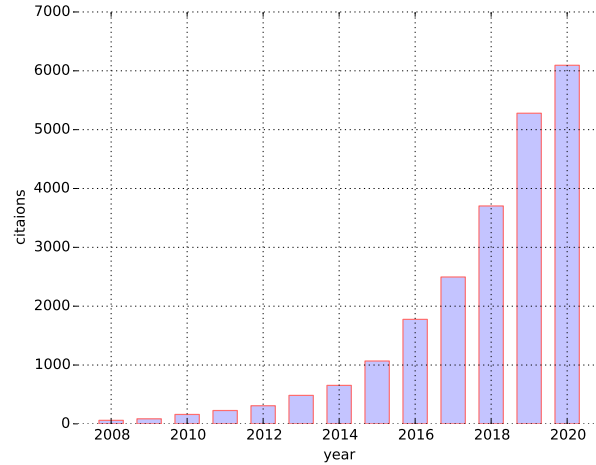


Figure 1: Google scholar citation as of 24.11.2020