## Refereed Publications (319)

Refereed Journal Articles (134)

- L. Tian, P. Wang, G. Liang, <u>C. Shen</u> (2021), "An adversarial human pose estimation network injected with graph structure", *Pattern Recognition*.
- 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, <u>C. Shen</u> (2020), "Towards light-weight portrait matting via parameter sharing", *Computer Graphics Forum*.
- C. Luo, Q. Lin, Y. Liu, L. Jin, <u>C. Shen</u> (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, <u>C. Shen</u> (2020), "TasselNetv2: in-field counting of wheat spikes with context-augmented local regression networks", *Plant Methods*.
- Y. Zhao, Y. Liu, <u>C. Shen</u>, 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, <u>C. Shen</u> (2020), "Part-guided attention learning for vehicle instance retrieval", *IEEE Trans. Intelligent Transportation Systems*.
- G. Dong, Y. Yan, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u> (2020), "NSSNet: scale-aware object counting with non-scale suppression", *IEEE Trans. Circuits and Systems for Video Technology*.
- L. Zhang, P. Wang, L. Liu, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, Y. Xia (2020), "SESV: accurate medical image segmentation by predicting and correcting errors", *IEEE Trans. Medical Imaging*.
- Y. Xie, J. Zhang, Y. Xia, <u>C. Shen</u> (2020), "A mutual bootstrapping model for automated skin lesion segmentation and classification", *IEEE Trans. Medical Imaging*.
- S. Zhang, Y. Liu, L. Jin, Z. Wei, <u>C. Shen</u> (2020), "OPMP: an omni-directional pyramid mask proposal network for arbitrary-shape scene text detection", *IEEE Trans. Multimedia*.
- Y. Yan, Y. Huang, S. Chen, <u>C. Shen</u>, H. Wang (2020), "Joint deep learning of facial expression synthesis and recognition", *IEEE Trans. Multimedia*.
- X. Peng, H. Zhu, J. Feng, <u>C. Shen</u>, 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, <u>C. Shen</u>, Y. Zhang (2020), "Learning deep gradient descent optimization for image deconvolution", *IEEE Trans. Neural Networks and Learning Systems*.
- L. Zhang, W. Wei, Q. Shi, <u>C. Shen</u>, 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, <u>C. Shen</u>, I. Reid (2020), "Real-time image smoothing via iterative least squares", *ACM Trans. Graphics*.
- J. Cao, Y. Guo, Q. Wu, <u>C. Shen</u>, J. Huang, M. Tan (2020), "Improving generative adversarial networks with local coordinate coding", *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- H. Lu, Y. Dai, <u>C. Shen</u>, S. Xu (2020), "Index networks", *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- Y. Liu, C. Shun, J. Wang, <u>C. Shen</u> (2020), "Structured knowledge distillation for dense prediction", *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- Y. Zhou, R. Ji, J. Su, X. Sun, D. Meng, Y. Gao, <u>C. Shen</u> (2020), "Plenty is plague: fine-grained learning for visual question answering", *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- L. Zhang, Z. Shi, J. Zhou, M. Cheng, Y. Liu, J. Bian, Z. Zeng, <u>C. Shen</u> (2020), "Ordered or orderless: a revisit for video based person re-identification", *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- Y. Chen, <u>C. Shen</u>, 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.
- L. Zhang, P. Wang, <u>C. Shen</u>, 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*.
- L. Zhang, W. Wei, Q. Shen, C. Shen, A. van den Hengel (2019), "Accurate imagery recovery using a multi-observation patch model", *Information Sciences*.
- J. Zhang, Q. Wu, J. Zhang, <u>C. Shen</u>, J. Lu, Q. Wu (2019), "Heritage image annotation via collective knowledge", *Pattern Recognition*.
- P. Wang, L. Liu, <u>C. Shen</u>, H. Shen (2019), "Order-aware convolutional pooling for video based action recognition", *Pattern Recognition*.
- Z. Wu, <u>C. Shen</u>, A. van den Hengel (2019), "Wider or deeper: revisiting the ResNet model for visual recognition", *Pattern Recognition*.
- Y. Zhao, <u>C. Shen</u>, H. Wang, S. Chen (2019), "Structural analysis of attributes for vehicle re-identification and retrieval", *IEEE Trans. Intelligent Transportation Systems*.
- X. Wang, <u>C. Shen</u>, 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, <u>C. Shen</u> (2019), "Counting objects by blockwise classification", *IEEE Trans. Circuits and Systems for Video Technology*.
- W. Liu, P. Zhang, X. Chen, <u>C. Shen</u>, 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, <u>C. Shen</u> (2019), "Hyperspectral classification based on lightweight 3D-CNN with transfer learning", *IEEE Trans. Geoscience and Remote Sensing*.
- X. Wei, P. Wang, L. Liu, <u>C. Shen</u>, 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, <u>C. Shen</u> (2019), "Salient object detection with lossless feature reflection and weighted structural loss", *IEEE Trans. Image Processing*.
- X. Wei, H. Ye, X. Mu, J. Wu, <u>C. Shen</u>, Z. Zhou (2019), "Multiple instance learning with emerging novel class", *IEEE Trans. Knowledge and Data Engineering*.
- J. Zhang, Y. Xie, Y. Xia, <u>C. Shen</u> (2019), "Attention residual learning for skin lesion classification", *IEEE Trans. Medical Imaging*.
- T. Zhang, G. Lin, J. Cai, T. Shen, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u> (2018), "Reading car license plates using deep neural networks", *Image and Vision Computing*.
- X. Wei, C. Zhang, J. Wu, <u>C. Shen</u>, Z. Zhou (2018), "Unsupervised object discovery and co-localization by deep descriptor transforming", *Pattern Recognition*.
- N. Zhuang, Y. Yan, S. Chen, H. Wang, <u>C. Shen</u> (2018), "Multi-label learning based deep transfer neural network for facial attribute classification", *Pattern Recognition*.
- 47 H. Li, P. Wang, <u>C. Shen</u> (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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u> (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 generation for optimizing ranking measures", *Int'l J. Computer Vision*.
- Y. Li, W. Li, <u>C. Shen</u> (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, <u>C. Shen</u> (2017), "TasselNet: counting maize tassels in the wild via local counts regression network", *Plant Methods*.
- X. Wei, C. Xie, J. Wu, <u>C. Shen</u> (2017), "Mask-CNN: localizing parts and selecting descriptors for bird species categorization", *Pattern Recognition*.
- R. Qiao, L. Liu, <u>C. Shen</u>, A. van den Hengel (2017), "Learning discriminative trajectorylet detector sets for accurate skeleton-based action recognition", *Pattern Recognition*.
- L. Wu, <u>C. Shen</u>, 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, <u>C. Shen (2017)</u>, "Deep CNNs with spatially weighted pooling for fine-grained car recognition", *IEEE Trans. Intelligent Transportation Systems*.
- Y. Cao, Z. Wu, <u>C. Shen</u> (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, <u>C. Shen</u>, 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, <u>C. Shen</u> (2017), "Structured learning of tree potentials in CRF for image segmentation", *IEEE Trans. Neural Networks and Learning Systems*.
- G. Lin, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, I. Reid, A. van den Hengel (2016), "Online unsupervised feature learning for visual tracking", *Image and Vision Computing*.
- S. Wang, J. Lu, X. Gu, <u>C. Shen</u>, R. Xia, J. Yang (2016), "Canonical principal angles correlation analysis for two-view data", *J. Visual Communication and Image Representation*.
- H. Li, F. Shen, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, A. van den Hengel, Q. Shi (2016), "Dictionary learning for promoting structured sparsity in hyerpsectral compressive sensing", *IEEE Trans. Geoscience and Remote Sensing* 54: 7223–7235.
- X. Zhao, X. Li, Z. Zhang, <u>C. Shen</u>, L. Gao, X. Li (2016), "Scalable linear visual feature learning via online parallel nonnegative matrix factorization", *IEEE Trans. Neural Networks and Learning Systems*.
- P. Wang, <u>C. Shen</u>, A. van den Hengel, P. Torr (2016), "Large-scale binary quadratic optimization using semidefinite relaxation and applications", *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- F. Liu, <u>C. Shen</u>, G. Lin, I. Reid (2016), "Learning depth from single monocular images using deep convolutional neural fields", *IEEE Trans. Pattern Analysis and Machine Intelligence*.
- X. Li, <u>C. Shen</u>, 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.
- S. Paisitkriangkrai, <u>C. Shen</u>, 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.
- L. Liu, L. Wang, <u>C. Shen</u> (2016), "A generalized probabilistic framework for compact codebook creation", *IEEE Trans. Pattern Analysis and Machine Intelligence* 38: 224–237.
- M. Harandi, R. Hartley, <u>C. Shen</u>, B. Lovell, C. Sanderson (2015), "Extrinsic methods for coding and dictionary learning on Grassmann manifolds", *Int'l J. Computer Vision* 114: 113–136.
- F. Liu, G. Lin, C. Shen (2015), "CRF learning with CNN features for image segmentation", Pattern Recognition 48: 2983-2992.
- 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.
- H. Li, <u>C. Shen</u>, A. van den Hengel, Q. Shi (2015), "Worst-case linear discriminant analysis as scalable semidefinite feasibility problems", *IEEE Trans. Image Processing* 24: 2382–2392.
- L. Luo, <u>C. Shen</u>, X. Liu, C. Zhang (2015), "A computational model of the short-cut rule for 2D shape decomposition", *IEEE Trans. Image Processing* 24.
- 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.
- 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.
- F. Liu, L. Zhou, <u>C. Shen</u>, J. Yin (2014), "Multiple kernel learning in the primal for multi-modal Alzheimer's disease classification", *IEEE J. Biomedical and Health Informatics*.
- Y. Lu, L. Wang, J. Lu, J. Yang, <u>C. Shen</u> (2014), "Multiple kernel clustering based on centered kernel alignment", *Pattern Recognition* 47: 3656–3664.
- S. Paisitkriangkrai, C. Shen, A. van den Hengel (2014), "Large-margin learning of compact binary image encodings", *IEEE Trans. Image Processing* 23: 4041–4054.
- Y. Yan, C. Shen, H. Wang (2014), "Efficient semidefinite spectral clustering via Lagrange duality", *IEEE Trans. Image Processing* 23: 3522–3534.
- Y. Li, W. Jia, <u>C. Shen</u>, A. van den Hengel (2014), "Characterness: An indicator of text in the wild", *IEEE Trans. Image Processing* 23: 1666–1677.
- X. Li, W. Hu, <u>C. Shen</u>, A. Dick, Z. Zhang (2014), "Context-aware hypergraph construction for robust spectral clustering", *IEEE Trans. Knowledge and Data Engineering* 26: 2588–2597.
- S. Paisitkriangkrai, <u>C. Shen</u>, A. van den Hengel (2014), "Asymmetric pruning for learning cascade detectors", *IEEE Trans.* Multimedia 16: 1254–1267.
- 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.
- S. Paisitkriangkrai, <u>C. Shen</u>, 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.
- S. Paisitkriangkrai, <u>C. Shen</u>, Q. Shi, A. van den Hengel (2014), "RandomBoost: Simplified multi-class boosting through randomization", *IEEE Trans. Neural Networks and Learning Systems* 25: 764–779.
- 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.

- L. Wang, L. Zhou, <u>C. Shen</u>, L. Liu, H. Liu (2014), "A hierarchical word-merging algorithm with class separability measure", *IEEE Trans. Pattern Analysis and Machine Intelligence* 36: 417–435.
- 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.
- C. Shen, H. Li, A. van den Hengel (2013), "Fully corrective boosting with arbitrary loss and regularization", Neural Networks 48: 44–58.
- X. Li, A. Dick, <u>C. Shen</u>, 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.
- 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.
- X. Li, W. Hu, <u>C. Shen</u>, 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.
- L. Luo, <u>C. Shen</u>, C. Zhang, A. van den Hengel (2013), "Shape similarity analysis by self-tuning locally constrained mixed-diffusion", *IEEE Trans. Multimedia* 15: 1174–1183.
- X. Li, A. Dick, <u>C. Shen</u>, 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.
- 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.
- P. Wang, <u>C. Shen</u>, 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.
- C. Shen, P. Wang, F. Shen, H. Wang (2012), "UBoost: Boosting with the Universum", *IEEE Trans. Pattern Analysis and Machine Intelligence* 34: 825–832.
- C. Shen, S. Paisitkriangkrai, J. Zhang (2011), "Efficiently learning a detection cascade with sparse eigenvectors", *IEEE Trans. Image Processing* 20: 22–35.
- S. Paisitkriangkrai, C. Shen, J. Zhang (2011), "Incremental training of a detector using online sparse eigendecomposition", *IEEE Trans. Image Processing* 20: 213–226.
- H. Li, C. Shen (2010), "Interactive color image segmentation with linear programming", Machine Vision and Applications 21: 403–412.
- C. Shen, J. Kim, H. Wang (2010), "Generalized kernel-based visual tracking", IEEE Trans. Circuits and Systems for Video Technology 20: 119–130.
- C. Shen, J. Kim, L. Wang (2010), "Scalable large-margin Mahalanobis distance metric learning", IEEE Trans. Neural Networks 21: 1524–1530.
- L. Zhou, L. Wang, <u>C. Shen</u> (2010), "Feature selection with redundancy-constrained class separability", *IEEE Trans. Neural Networks* 21: 853–858.
- C. Shen, H. Li (2010), "Boosting through optimization of margin distributions", *IEEE Trans. Neural Networks* 21: 659–666.
- C. Shen, H. Li (2010), "On the dual formulation of boosting algorithms", *IEEE Trans. Pattern Analysis and Machine Intelligence* 32: 2216–2231.
- S. Paisitkriangkrai, C. Shen, J. Zhang (2008), "Performance evaluation of local features in human classification and detection", *IET Computer Vision* 2: 236–246.
- C. Shen, H. Li, M. Brooks (2008), "Supervised dimensionality reduction via sequential semidefinite programming", *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, <u>C. Shen</u> (2007), "Adaptive object tracking based on an effective appearance filter", *IEEE Trans. Pattern Analysis and Machine Intelligence* 29: 1661–1667.
- Z. Lin, J. Lu, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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)
- 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, <u>C. Shen</u>, N. Sang (2020), "Context prior for scene segmentation", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR*'20).
- R. Zhang, Z. Tian, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u> (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, <u>C. Shen</u> (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, <u>C. Shen</u>, 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, <u>C. Shen</u> (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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, H. Chen (2020), "Conditional convolutions for instance segmentation", In: *Proc. European Conf. Computer Vision (ECCV*'20).
- X. Wang, T. Kong, <u>C. Shen</u>, Y. Jiang, L. Li (2020), "SOLO: segmenting objects by locations", In: *Proc. European Conf. Computer Vision (ECCV*'20).
- T. He, D. Gong, Z. Tian, <u>C. Shen</u> (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, <u>C. Shen</u> (2020), "Weighing counts: sequential crowd counting by reinforcement learning", In: *Proc. European Conf. Computer Vision* (ECCV'20).
- Y. Liu, <u>C. Shen</u>, 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, <u>C. Shen</u> (2020), "SOLOv2: dynamic and fast instance segmentation", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS* 20).
- P. Wang, Q. Wu, J. Cao, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u> (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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u> (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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, Y. Yan (2019), "Enforcing geometric constraints of virtual normal for depth prediction", In: *Proc. IEEE Int'l Conf. Computer Vision (ICCV'19)*.
- H. Zhang, <u>C. Shen</u>, 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, <u>C. Shen</u> (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, <u>C. Shen</u>, 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, <u>C. Shen</u>, M. Tan (2019), "Multi-marginal wasserstein GAN", In: *Proc. Advances in Neural Information Processing Systems (NeurIPS' 19)*.
- T. Shen, G. Lin, <u>C. Shen</u>, I. Reid (2018), "Bootstrapping the performance of webly supervised semantic segmentation", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'18*).
- K. Xian, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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)*.
- B. Zhuang, <u>C. Shen</u>, M. Tan, L. Liu, I. Reid (2018), "Towards effective low-bitwidth convolutional neural networks", <u>In: Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'18)</u>.
- 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).
- X. Wang, T. Xiao, Y. Jiang, S. Shao, J. Sun, <u>C. Shen</u> (2018), "Repulsion loss: detecting pedestrians in a crowd", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'18*).
- 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).
- J. Zhang, Q. Wu, <u>C. Shen</u>, 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)*.
- R. Deng, <u>C. Shen</u>, S. Liu, H. Wang, X. Liu (2018), "Learning to predict crisp boundaries", In: *Proc. European Conf. Computer Vision (ECCV'18*).
- J. Cao, Y. Guo, Q. Wu, <u>C. Shen</u>, J. Huang, M. Tan (2018), "Adversarial learning with local coordinate coding", In: *Proc. Int'l Conf. Machine Learning (ICML'18)*.
- P. Wang, Q. Wu, <u>C. Shen</u>, 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).
- G. Lin, A. Milan, <u>C. Shen</u>, I. Reid (2017), "RefineNet: multi-path refinement networks for high-resolution semantic segmentation", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'17)*.
- 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).
- D. Gong, J. Yang, L. Liu, Y. Zhang, I. Reid, <u>C. Shen</u>, 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)*.
- B. Zhuang, L. Liu, Y. Li, <u>C. Shen</u>, 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).
- P. Wang, L. Liu, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, I. Reid (2017), "Towards context-aware interaction recognition", In: *Proc. IEEE Int'l Conf. Computer Vision (ICCV'17)*.
- Y. Chen, <u>C. Shen</u>, 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, <u>C. Shen</u> (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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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, <u>C. Shen</u>, 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).
- G. Lin, <u>C. Shen</u>, 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*).
- G. Lin, C. Shen, J. Wu (2014), "Optimizing ranking measures for compact binary code learning", In: *Proc. European Conf. Computer Vision (ECCV'14)*.
- 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)*.
- L. Liu, <u>C. Shen</u>, 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).
- 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)*.
- X. Li, <u>C. Shen</u>, 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)*.
- Z. Wang, Q. Shi, <u>C. Shen</u>, 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)*.
- 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)*.
- 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).
- 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, <u>C. Shen</u>, 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)*.
- X. Li, Y. Li, <u>C. Shen</u>, A. Dick, A. van den Hengel (2013), "Contextual hypergraph modeling for salient object detection", In: *Proc. IEEE Int'l Conf. Computer Vision (ICCV'13)*.
- M. Harandi, C. Sanderson, <u>C. Shen</u>, B. Lovell (2013), "Dictionary learning and sparse coding on Grassmann manifolds: an extrinsic solution", In: *Proc. IEEE Int'l Conf. Computer Vision (ICCV'13*).
- X. Li, G. Lin, <u>C. Shen</u>, A. van den Hengel, A. Dick (2013), "Learning hash functions using column generation", In: *Proc. Int'l Conf. Machine Learning (ICML'13)*.
- 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.
- 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.
- R. Yao, Q. Shi, <u>C. Shen</u>, Y. Zhang, A. van den Hengel (2012), "Robust tracking with weighted online structured learning", In: *Proc. European Conf. Computer Vision (ECCV'12)*: 158–172.
- 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)*.
- 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.
- L. Liu, L. Wang, <u>C. Shen</u> (2011), "A generalized probabilistic framework for compact codebook creation", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'11)*: 1537–1544.
- 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.
- H. Li, <u>C. Shen</u>, Q. Shi (2011), "Real-time visual tracking using compressive sensing", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'11)*: 1305–1312.
- 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.
- X. Li, A. Dick, H. Wang, <u>C. Shen</u>, A. van den Hengel (2011), "Graph mode-based contextual kernels for robust SVM tracking", In: <u>Proc. IEEE Int'l Conf. Computer Vision (ICCV'11)</u>: 1156–1163.
- Q. Shi, H. Li, <u>C. Shen</u> (2010), "Rapid face recognition using hashing", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'10)*: 2753–2760.
- C. Shen, P. Wang, H. Li (2010), "LACBoost and FisherBoost: optimally building cascade classifiers", In: Proc. European Conf. Computer Vision (ECCV'10): 608–621.
- S. Paisitkriangkrai, <u>C. Shen</u>, 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.
- 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).
- L. Wang, L. Zhou, <u>C. Shen</u> (2008), "A fast algorithm for creating a compact and discriminative visual codebook", In: *Proc. European Conf. Computer Vision (ECCV*'08): 719–732.
- 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)*.
- Q. Nguyen, A. Robles-Kelly, <u>C. Shen</u> (2007), "Kernel-based tracking from a probabilistic viewpoint", In: *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR*'07).
- 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 (25)

- Proc. AAAI Conf. Artificial Intelligence (AAAI)
- Proc. Int. Joint Conf. Artificial Intelligence (IJCAI)
- Proc. ACM SIGKKD 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)
- $\bullet \ \ Proc.\ Int.\ Conf.\ Medical\ Image\ Computing\ and\ Computer\ Assisted\ Intervention\ (MICCAI)$
- 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*).

- C. Liu, P. Chen, B. Zhuang, <u>C. Shen</u>, B. Zhang, W. Ding (2021), "SA-BNN: state-aware binary neural network", In: *Proc. AAAI Conf. Artificial Intelligence (AAAI'21)*.
- D. Teney, P. Wang, J. Cao, L. Liu, <u>C. Shen</u>, A. van den Hengel (2020), "V-PROM: a benchmark for visual reasoning using visual progressive matrices", In: *Proc. AAAI Conf. Artificial Intelligence (AAAI'20)*.
- X. Wang, W. Yin, T. Kong, Y. Jiang, L. Li, <u>C. Shen</u> (2020), "Task-aware monocular depth estimation for 3D object detection", In: *Proc. AAAI Conf. Artificial Intelligence (AAAI 20)*.
- 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*).
- Y. Xie, J. Zhang, Z. Liao, <u>C. Shen</u>, 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 (MIC-CAI*'20).
- H. Li, P. Wang, <u>C. Shen</u>, G. Zhang (2019), "Show, attend and read: a simple and strong baseline for irregular text recognition", In: *Proc. AAAI Conf. Artificial Intelligence (AAAI 19)*.
- 8 C. Yan, G. Pang, X. Bai, <u>C. Shen</u>, J. Zhou, E. Hancock (2019), "Deep hashing by discriminating hard examples", In: *Proc. ACM Int'l Conf. Multimedia (ACMMM'19*).
- V. Nekrasov, T. Dharmasiri, A. Spek, T. Drummond, <u>C. Shen</u>, I. Reid (2019), "Real-time joint semantic segmentation and depth estimation using asymmetric annotations", In: *Proc. Int'l Conf. Robotics and Automation (ICRA'19*).
- J. Zhang, Y. Xie, P. Zhang, H. Chen, Y. Xia, <u>C. Shen</u> (2019), "Light-weight hybrid convolutional network for liver tumor segmentation", In: *Proc. Int'l Joint Conf. Artificial Intelligence (IJCAI'19*).
- 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)*.
- Y. Xie, H. Lu, J. Zhang, <u>C. Shen</u>, 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*).
- J. Zhang, Q. Wu, J. Zhang, <u>C. Shen</u>, 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)*.
- 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)*.
- V. Nekrasov, <u>C. Shen</u>, I. Reid (2018), "Light-weight refinenet for real-time semantic segmentation", In: *Proc. British Machine Vision Conference (BMVC'18)*.
- M. Cai, <u>C. Shen</u>, I. Reid (2018), "A hybrid probabilistic model for camera relocalization", In: *Proc. British Machine Vision Conference (BMVC'18*).
- P. Zhang, W. Liu, H. Lu, <u>C. Shen</u> (2018), "Salient object detection by lossless feature reflection", In: *Proc. Int'l Joint Conf. Artificial Intelligence (IJCAI'18*).
- R. Qiao, L. Liu, <u>C. Shen</u>, A. van den Hengel (2017), "Visually aligned word embeddings for improving zero-shot learning", In: *Proc. British Machine Vision Conference (BMVC'17)*.
- T. Shen, G. Lin, L. Liu, <u>C. Shen</u>, I. Reid (2017), "Weakly supervised semantic segmentation based on co-segmentation", In: *Proc. British Machine Vision Conference (BMVC'17)*.
- Z. Chen, A. Jacobson, N. Sunderhauf, B. Upcroft, L. Liu, <u>C. Shen</u>, 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*).
- T. Shen, G. Lin, <u>C. Shen</u>, 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)*.
- X. Wei, C. Zhang, Y. Li, C. Xie, J. Wu, <u>C. Shen</u>, Z. Zhou (2017), "Deep descriptor transforming for image co-localization", In: *Proc. Int'l Joint Conf. Artificial Intelligence (IJCAI'17*).
- P. Wang, Q. Wu, <u>C. Shen</u>, 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)*.
- 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.
- L. Zhou, L. Wang, <u>C. Shen</u>, 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)
- R. Li, K. Xian, <u>C. Shen</u>, Z. Cao, H. Lu, L. Hang (2018), "Deep attention-based classification network for robust depth prediction", In: *Proc. Asian Conf. Computer Vision (ACCV'18*).
- X. Wei, C. Zhang, L. Liu, <u>C. Shen</u>, J. Wu (2018), "Coarse-to-fine: a RNN-based hierarchical attention model for vehicle re-identification", In: *Proc. Asian Conf. Computer Vision (ACCV'18*).
- L. Dong, Y. Gan, X. Mao, Y. Yang, <u>C. Shen</u> (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*).
- S. McMahon, T. Shen, N. Sunderhauf, I. Reid, <u>C. Shen</u>, M. Milford (2017), "Auxiliary tasks to improve trip hazard affordance detection", In: *Proc. Australasian Conf. Robotics and Automation (ACRA'17)*.
- M. Milford, <u>C. Shen</u>, 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).
- G. Lin, C. Shen, A. van den Hengel (2013), "Approximate constraint generation for efficient structured boosting", In: Proc. IEEE Conf. Image Processing (ICIP'13).
- 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, <u>C. Shen</u>, 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)*.
- G. Lin, <u>C. Shen</u>, 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.
- 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.
- T. Wang, X. He, <u>C. Shen</u>, 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.
- P. Wang, <u>C. Shen</u>, 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.
- Y. Zheng, <u>C. Shen</u>, 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.
- Z. Hao, <u>C. Shen</u>, N. Barnes, B. Wang (2010), "Totally-corrective multi-class boosting", In: *Proc. Asian Conf. Computer Vision (ACCV'10)*: 269–280.
- S. Paisitkriangkrai, C. Shen, J. Zhang (2010), "Face detection with effective feature extraction", In: *Proc. Asian Conf. Computer Vision (ACCV'10)*: 460–470.
- H. Li, P. Wang, <u>C. Shen</u> (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.
- 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.
- P. Wang, <u>C. Shen</u>, 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.
- 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.
- 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.
- 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.
- 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.
- Y. Lu, L. Wang, R. Hartley, H. Li, <u>C. Shen</u> (2008), "Multi-view human motion capture with an improved deformation skin model", In: *Proc. Int'l Conf. Digital Image Computing Techniques and Applications (DI-CTA*'08): 420–427.
- 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.
- 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.
- <u>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.</u>
- 27 <u>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.</u>
- 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.
- 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.
- 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.
- 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.
- <u>C. Shen</u>, 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*: 76; citations: 25087)

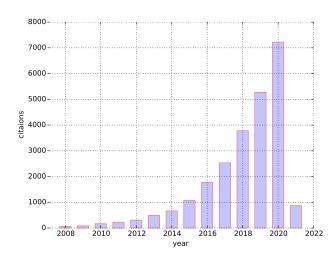


Figure 1: Google scholar citation as of 20·2·2021