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Research Interests

Statistical Machine Learning, Computer Vision and Deep learning.

Biography

Chunhua Shen is a Professor at School of Computer Science, University of Adelaide. He is a Project Leader and Chief Investigator at the Australian Research Council Centre of Excellence for Robotic Vision (ACRV), for which he leads the project on machine learning for robotic vision. Before he moved to Adelaide as a Senior Lecturer, he was with the computer vision program at NICTA (National ICT Australia), Canberra Research Laboratory for about six years. His research interests are in the intersection of computer vision and statistical machine learning. Recent work has been on large-scale image retrieval and classification, object detection and pixel labelling using deep learning.

He studied at Nanjing University, at Australian National University, and received his PhD degree from the University of Adelaide. From 2012 to 2016, he holds an Australian Research Council Future Fellowship. He is serving as Associate Editor of IEEE Transactions on Neural Networks and Learning Systems.

Selected Publications

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.

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, P. Wang, C. Shen, A. van den Hengel, F. Porikli (2017), “Pushing the limits of deep CNNs for pedestrian detection”, 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.

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.
2016 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.
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 hyerpsectral compressive sensing”, IEEE Trans. Geoscience and Remote Sensing 54: 7223−7235.
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.
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.
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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.
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.
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.
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.
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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.
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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.
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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.
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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, 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.
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.
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, 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.
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.
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