

**Title:**

The Challenges in Pattern Recognition and Computer Vision

Abstract:

Pattern recognition has become one of the largest computer science research communities. We have made tremendous progress in recent years over a wide range of areas, including object recognition, image understanding, video analysis, 3D reconstruction, etc. It has also become one of the largest computer science research communities. Researchers have been proposed numerous methods to solve these problems. Despite great progresses achieved in recent years, their performance is still far from satisfactory in unconstrained environments where diverse real-world imaging conditions such as varying poses, occlusions, illuminations and views. The purpose of this workshop is to call for a coordinated effort to understand the opportunities and challenges emerging in computer vision and pattern recognition fields, identify key tasks and evaluate the state-of-the-art, demonstrate innovative methodologies and ideas, introduce large scale real systems or applications, as well as discuss future directions.

Scope and Topics:

The workshop will collect research updates in a timely manner to benefit researchers and practitioners. More specifically, topics of interest include, but are not limited to:

- ✧ Traditional technology
 - ✧ Face recognition/Facial expression recognition
 - ✧ Human detection, behavior prediction, tracking, reconstruction and recognition
 - ✧ Person re-identification, verification in surveillance videos
 - ✧ Transfer learning and domain adaptation learning
 - ✧ Analysis of human intention from social networks data involving multimodal information.
 - ✧ Information retrieval, categorization and clustering of social networks data, including images, text, and videos.
 - ✧ Image understanding
 - ✧ Video analysis
- ✧ Deep learning for pattern recognition and computer vision
 - ✧ Deep learning architectures for pattern recognition
 - ✧ Sparse coding in deep learning
 - ✧ Transfer learning for deep learning
 - ✧ Deep learning for feature representation



- ◇ Deep learning for facial analysis
- ◇ Deep learning for object recognition
- ◇ Deep learning for scene understanding
- ◇ Deep learning for document analysis
- ◇ Deep learning for semantic segmentation
- ◇ Multi-modal deep learning

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Shaodi You received his Ph.D. and M.E. degrees from The University of Tokyo, Japan in 2015 and 2012 and his bachelor's degree from Tsinghua University, P. R. China in 2009. He is currently a research scientist at Data61-CSIRO (formerly known as NICTA), Australia. He also serves as adjunct lecturer 615 at Australian National University, Australia. His research interests are

physics based vision, non-rigid 3D geometry and perception and learning based vision. He is currently the Chair of IEEE Computer Society, Australian Capital Territory Section, Australia. He is the general chair of International Conference on Digital Image Computing: Techniques and Applications (DICTA) 2018. He serves as program chair of ICCV2017 Joint Workshop on Physics Based Vision meets Deep Learning. He serves as reviewer for TPAMI, IJCV, TIP, CVPR, ICCV, SIGGRAPH and etc.

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Yuchao Dai is currently a Professor (supported by the "1000 Young Talent Program" of China) with School of Electronics and Information, Northwestern Polytechnical University, Xi'an, China. Yuchao Dai received the B.E., M.E, and Ph.D. degrees from Northwestern Polytechnical University, Xi'an, China, in 2005, 2008, and 2012, respectively, all in signal and information

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the DSTO Best Fundamental Contribution to Image Processing Paper Prize at DICTA 2014, and the Best Algorithm Prize in Non-Rigid Structure-from-Motion Challenge at CVPR 2017, the Best Student Paper at DICTA 2017 and Best Deep/Machine Learning Paper Award at APSIPA ASC 2017.

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Guoqing Zhang received the B.S. and Master degrees in information engineering from the Yangzhou University, Yangzhou, China, in 2009 and 2012, and the Ph.D. degree in pattern recognition and intelligence system from Nanjing University of Science and Technology, Nanjing, China, in 2017. He was a visit student with the Research School of Engineering, Australian National University, Canberra, Australia from 2015 to 2016. He is currently a faculty member with the School of Computer and Software, Nanjing University of Information Science and Technology, Nanjing, China. His current research interests include computer vision, pattern recognition and machine learning. He has published more than 20 papers in prestigious journals and conferences such as IEEE TIP, IEEE Transactions on Industrial Electronics, PR and Information Science.

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