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PROFESSOR DONG XU

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Biographical details

Dong Xu is Chair in Computer Engineering at the School of Electrical and Information Engineering, The University of Sydney, Australia. He received the B.Eng. and PhD degrees from University of Science and Technology of China, in 2001 and 2005, respectively. While pursuing the PhD degree, he worked at Microsoft Research Asia and The Chinese University of Hong Kong for more than two years. He also worked as a postdoctoral research scientist at Columbia University from 2006 to 2007 and a faculty member at Nanyang Technological University from 2007 to 2015.

His current research interests include computer vision, multimedia, machine learning and biomedical image analysis. His group has developed new machine learning methods for various vision and big data analytics related applications including Internet vision and social media (i.e., large scale image/video retrieval, visual recognition using massive Web data), biometrics (i.e., face recognition and tagging, human gait recognition and person re-identification), video analysis and medical image analysis. He has published more than 100 papers in IEEE Transactions and top tier conferences including CVPR, ICCV, ECCV, ICML, ACM MM and MICCAI. His co-authored work (with his former PhD student Lixin Duan) received the Best Student Paper Award in IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) in 2010. His coauthored work (with his former PhD student Lin Chen) won the IEEE Transactions on Multimedia Prize Paper Award in 2014. When working at Nanyang Technological University, he received several research projects from Singapore National Research Foundation, A*STAR, Singapore Ministry of Education, Microsoft Research Asia and Rolls-Royce Plc.

He is on the editorial boards of IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), IEEE Transactions on Neural Networks and Learning Systems (T-NNLS) and IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT). He also served as a guest editor of the special issue on "Visual Saliency Computing and Learning" in IEEE T-NNLS, the special issue on "Domain Adaptation for Vision Applications" in International Journal of Computer Vision (IJCV), the special issue on "Computer Vision for RGB-D Sensors: Kinect and Its Applications" in IEEE Transactions on Cybernetics (T-CYB), the special issue on "Social Media" in ACM Transactions on Multimedia Computing, Communications and Applications (ACM TOMM), the special issue on "Event Analysis in Videos" in IEEE T-CSVT, the special issue on "Video Analysis" in Computer Vision and Image Understanding (CVIU) and the special issue on "Visual Content Identification and Search" in IEEE Multimedia. Moreover, he served as a program co-chair of IEEE International Conference on Multimedia & Expo (ICME) in 2014, a program co-chair of Pacific-Rim Conference on Multimedia (PCM) in 2012, and an area chair of CVPR 2012.

徐东博士于2001年和2005年在中国科学技术大学取得学士和博士学位, 目前担任悉尼大学电子与信息工程学院教授。徐东教授曾在微软亚洲研究院、香港中文大学和美国哥伦比亚大学从事研究工作, 并在新加坡南洋理工大学任教。徐东教授在计算机视觉、多媒体信号处理、机器学习以及医学图像处理等领域做出了重要贡献, 在IEEE Transactions上发表了60余篇期刊论文和多篇国际会议论文, 其中两篇论文于2014年和2010年分别获得IEEE T-MM最佳论文奖和IEEE CVPR 最佳学生论文奖。徐东教授目前担任IEEE T-PAMI, T-NNLS和T-CSVT等学术期刊编委, 以及ICME和VALSE (视觉与学习青年学者研讨会)指导委员会成员, 曾担任IEEE T-NNLS, T-CYB, T-CSVT, IEEE Multimedia, IJCV和ACM TOMM 等国际期刊的客座主编, 以及ICME 2014程序委员会协同主席, ECCV2016和CVPR 2012区域主席。

SEARCH PAGE

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Research interests

In the age of 'big media', millions of images and videos are captured, shared and broadcast every day by news, surveillance, digital and mobile phone cameras. While we as humans can make sense of the rich information they contain, Professor Dong Xu's research aims to ensure that computers, too, will be able to recognise the people, objects, activities and events depicted. This has important implications for national security, among other areas.

"We start learning how to recognise faces, objects, activities and events as we're growing up. However, computers are not so smart. Trying to develop an intelligent system for computers to understand images and videos is not a trivial task, due to the semantic gaps between the low-level visual information extracted from images and videos and the high-level semantic concepts we use to understand them.

"I am developing machine learning methods and intelligent systems that can process and understand unstructured visual data (images and videos that don't contain any semantic metadata) and automatically tag them with useful and searchable information - such as the people's names in the case of images of faces, and concepts such as picnic, birthday party or wedding in the case of videos capturing events.

"This technology will have a broad range of applications, from national security and video surveillance to human-computer interaction, robotics, autonomous cars and biomedical image analysis. It will also be useful for visually impaired people, allowing them to virtually "see" the world.

"In particular, a number of tragic terrorist attacks in recent decades has increased demand for efficient human identification from images and videos taken in environments such as airports and banks. This could provide critical early warnings of terrorist, criminal and other human-based threats, allowing rapid responses to prevent or mitigate these events."

Awards and honours

- Prize Paper Award (with former PhD student Lin Chen), IEEE Transactions on Multimedia, 2014/07
- Best Student Paper Award (with former PhD student Lixin Duan), IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2010/06
- Presidential Scholarship of Chinese Academy of Sciences, 2005
- Microsoft Research Asia Fellowship, 2004

In the media

Defenceless against artificial intelligence(<http://sydney.edu.au/news-opinion/news/2016/03/16/-defenceless-against-artificial-intelligence.html>) [16-Mar-16]

University of Sydney

Artificial intelligence must be kept under human control or we may become defenceless against its capabilities, warn two University of Sydney machine learning experts. [More..\(http://sydney.edu.au/news-opinion/news/2016/03/16/-defenceless-against-artificial-intelligence.html\)](http://sydney.edu.au/news-opinion/news/2016/03/16/-defenceless-against-artificial-intelligence.html)

International collaboration

Electrical Engineering, Columbia University(<http://www.ee.columbia.edu/>) [United States]

Prof. Shih-Fu Chang (my postdoc supervisor)

PhD and master's project opportunities

- **Machine learning for visual recognition**(<http://www.usyd.edu.au/research/opportunities/opportunities/2022>)
- **Biometrics (face recognition, human gait recognition or person re-identification)** (<http://www.usyd.edu.au/research/opportunities/opportunities/2058>)

- [Video analytics \(activity and video event recognition\)](http://www.usyd.edu.au/research/opportunities/opportunities/2059)
(<http://www.usyd.edu.au/research/opportunities/opportunities/2059>)

Selected grants

2013

- *Automatic Video Tagging by Learning from Web Data*; Xu D; Ministry of Education, Singapore/Academic Research Fund Tier 2.
- *Feature Extraction and Image Classification Techniques*; Xu D; Rolls Royce Singapore/Research Support.

2012

- *Bessel Beam Imaging of the Irido-Corneal Angle with Overlay of Fluorescence Emission Distribution*; Xu D; Agency For Science, Technology And Research (ASTAR)/Project Grant.

Selected publications

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Journals

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- Xu, X., Li, W., Xu, D., Tsang, I. (2016). Co-Labeling for Multi-view Weakly Labeled Learning. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 38(6), 1113-1125. [\[More Information\]\(http://dx.doi.org/10.1109/TPAMI.2015.2476813\)](http://dx.doi.org/10.1109/TPAMI.2015.2476813)
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- Niu, L., Li, W., Xu, D. (2016). Exploiting Privileged Information from Web Data for Action and Event Recognition. *International Journal of Computer Vision*, 118(2), 130-150. [\[More Information\]\(http://dx.doi.org/10.1007/s11263-015-0862-5\)](http://dx.doi.org/10.1007/s11263-015-0862-5)
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