



Distinguished Lecture Series

Person Re-Identification and Tracking in Multiple Non-Overlapping Cameras



Monday, Sep. 16, 2019 10:00am

Auditorium 106,
Institute of Information Science, Academia Sinica

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Abstract

Given a query image, person re-identification is the problem of retrieving all the images of the same identity from a large gallery, where query and gallery images are captured by distinctively different cameras which may or may not have any field-of-view overlap. In this talk, first I will present an approach to adopt human semantic parsing which, due to its pixel-level accuracy and capability of modeling arbitrary contours commonly generated by severe pose variation and occlusion, is naturally a better alternative. Our proposed SPReID (Semantic Parsing Re-Identification) integrates human semantic parsing in person re-identification and not only considerably outperforms its counter baseline but achieves state-of-the-art performance.

Generalization of Person Re-Identification problem is the Tracking in Multiple Non-Overlapping Cameras. Re-ID problem is a sub-problem of tracking, and is solved for every frame in within-camera tracking in order to resolve occlusion, miss detection, etc. It is also solved in across-camera tracking in order to link object tracks from different cameras, whose appearance may drastically vary due to viewpoint changes, camera gain differences, time delays etc. Next, I will present a unified three-layer hierarchical approach for solving tracking problem in multiple non overlapping cameras. The tracking problem is formulated as finding fast-constrained dominant sets from a graph. To best serve our purpose, we propose novel Fast-Constrained Dominant Set Clustering (FCDSC), which is an order of magnitude faster than other known methods.

Biography

Dr. Mubarak Shah, the UCF Trustee Chair Professor, is the founding director of Center for Research in Computer Visions at University of Central Florida (UCF). Dr. Shah is a fellow of IEEE, IAPR, AAAS and SPIE. He has published extensively on topics related to visual surveillance, tracking, human activity and action recognition, object detection and categorization, shape from shading, geo registration, visual crowd analysis, etc. He has been ACM and IEEE Distinguished Visitor Program speaker and is often invited to present seminars, tutorials and invited talks all over the world. He is recipient of ACM SIGMM Technical Achievement award; IEEE Outstanding Engineering Educator Award; Harris Corporation Engineering Achievement Award; an honorable mention for the ICCV 2005 Where Am I? Challenge Problem; 2013 NGA Best Research Poster Presentation; 2nd place in Grand Challenge at the ACM Multimedia 2013 conference; and runner up for the best paper award in ACM Multimedia Conference in 2005 and 2010. At UCF he has received Pegasus Professor Award; University Distinguished Research Award; Faculty Excellence in Mentoring Doctoral Students; Scholarship of Teaching and Learning award; Teaching Incentive Program award; Research Incentive Award.

Research Interest

Video Surveillance, Visual Tracking, Human Activity Recognition, Visual Analysis of Crowded Scenes, Video Registration, UAV Video Analysis, etc.

For more information: <http://www.iis.sinica.edu.tw/>

