



UNIVERSITY OF CENTRAL FLORIDA
CENTER FOR RESEARCH IN COMPUTER VISION

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“Recent Advances in Online Object Tracking”
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ABSTRACT

There has been a growing interest in compressive sensing and sparse representation in the past few years. In this talk, I will present some recent results on how these theories can be extended and applied for constructing effective appearance models within the context of online object tracking. First, I will present the recent results on compressive tracking. The proposed appearance model employs non-adaptive random projections which preserve the structure of image feature space. A sparse measurement matrix is adopted to efficiently compress the features in a low-dimensional space for foreground and background separation. Second, I will present a collaborative model for object tracking in which we exploit both holistic templates and local representations. We develop a sparsity-based discriminative classifier and a sparsity-based generative model. Within our tracking scheme, the collaboration of generative models and discriminative classifiers contributes to achieve more robust results. Finally, while much progress has been made in recent years with efforts to share code and data sets, it is of great importance to develop a library and benchmark to gauge the state of the art. I will present some of our findings on large scale experiments with different evaluation criteria to understand how these algorithms perform. These findings also reveal critical components for a robust tracker for future research.

BIOGRAPHY

Ming-Hsuan Yang is an assistant professor in Electrical Engineering and Computer Science at University of California, Merced. He has served as an area chair for several conferences including IEEE Conference CVPR, IEEE ICCV, Asian Conference on Computer, AAAI National Conference on Artificial Intelligence, and IEEE International Conference on Automatic Face and Gesture Recognition. He served as an associate editor of the IEEE Transactions on Pattern Analysis and Machine Intelligence from 2007 to 2011, and currently is as an associate editor of the Image and Vision Computing and Journal of Artificial Intelligence Research. Yang received the Google Faculty Award in 2009, and the Distinguished Early Career Research award from the UC Merced senate in 2011. Yang is a recipient of the Faculty Early Career Development (CAREER) award from the National Science Foundation in 2012. He is a senior member of the IEEE and the ACM.