Research in human action recognition has advanced along multiple fronts in recent years to address various types of actions including simple, isolated actions in staged data (e.g., KTH dataset), complex actions (e.g., UCF50) and naturally occurring actions in surveillance videos (e.g., VIRAT dataset). The approach taken to solve action recognition problem primarily depends on the kind of dataset and if the object of interest can be detected and tracked. In this talk, I will present three new approaches to do action recognition in different scenarios. Firstly, I will present the use of 3D-Gradients in Spatio-temporal volumes obtained from tracking an object. Secondly, I will show the advantages of using scene context information where background and foreground can be separated. Thirdly, I will present Feature-Tree framework, which doesn’t need any detection, tracking or background separation. Finally, I will introduce a new video representation “Particle Flow” and experimentally show that it outperformed video representations like gradients and optical flow.

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