Abstract: In this talk, we will present two frameworks for abnormal event detection in video. The first framework is unsupervised, as it does not require any training sequences. The unsupervised framework (ICCV, 2017) is based on unmasking, a technique previously used for authorship verification in text documents, which we adapt to the abnormal event detection task. We iteratively train a binary classifier to distinguish between two consecutive video sequences while removing at each step the most discriminant features. Higher training accuracy rates of the intermediately obtained classifiers represent abnormal events. This is the first example that applies unmasking in a computer vision task. The second framework that we will present in this talk is supervised, and it is based on formulating the abnormal event detection problem as an outlier detection task. The supervised framework (WACV, 2019) employs a novel two-stage algorithm based on k-means clustering and one-class SVM to eliminate outliers. To detected abnormal events in the test video, we analyze each test sample and consider its maximum normality score provided by the trained one-class SVM models, based on the intuition that a test sample can belong to only one cluster of normal motion. We will also present results of our methods on four benchmark data sets.