

Abstract: Thanks to the recent success of deep learning, many computer vision tasks nowadays are formulated as regression problems, from high-level vision tasks such as object detection and image captioning, to middle-level tasks such as structure from motion, and low-level tasks such as image matching and optical flow. However, often times one has to rely on large amounts of annotated training data to make the high-dimensional curve-fitting successful. In this talk, we will discuss a complementary yet overlooked problem beyond deep visual recognition and regression: discovering visual patterns in images and videos, and reveal that computer vision can be more than a regression problem. I will discuss our recent work of unsupervised and weakly-supervised visual pattern discovery, and explore how to utilize them to better summarize, search, and interpret big visual data. Applications in object instance search, object detection, action recognition, and video summarization will also be discussed.