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Image understanding at a large-scale: From shallow to deep and beyond

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The analysis and understanding of images at a large-scale is a problem which has received an increasing attention in the past few years. The rapid growth on the number of images and videos online and the availability of datasets consisting on hundreds of thousands or even millions of manually annotated images, impose exciting new challenges to the computer vision community as a whole. One of the fundamental problems on visual recognition, i.e., the way we represent the images and its content, is witnessing a paradigm shift towards a new class of models trying to exploit the vast amount of available data as well as the fast growth and widespread use of high-performance computing systems. In this talk, I will discuss different models that have been proposed in the computer vision literature to encode the visual information over the past few years, from the early shallow models to the more recent deep architectures. I will focus on the large-scale image annotation problem, i.e., the task of providing semantic labels to images when the number of those images and/or the number of possible annotations is very large, and its connection with other problems of growing practical interest.

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Animation from motion capture: Pitfalls, potential and proper uses

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Motion capture is the practice of capturing the movements of a chosen subject, most often a human subject. Motion capture has progressed greatly through many iterations of technology through the years. The mystery's that remain seem to be when and how to use it. That statement is a little audacious I must admit, but there is good reason. Quite often motion capture in both games and film is viewed as a means to a quicker and cheaper solution. What is never taken into consideration is the inevitability of a director to change their mind, request adjustments and the ever popular dirty mo-cap data received from the supplier. These can often take as much time to repair, change or adjust and can be quite monotonous and taxing on the artists assigned the job. This isn't to say mo-cap doesn't have its place especially in film where realism in VFX laden movies is oddly in contrast to the ever less realistic scenarios the characters are thrust into. Motion capture is used very often in video games with the intention of adding to the realism of the game. What we end up with a lot of times is very weightless feeling characters. Why is that? The root of the problem is how the motion capture is being used, and the lack of cues that the eye and ultimately the human brain are using to register visual weight. With the hardware's technical ability to allow animators to include more and more details in animation of characters this becomes less of an issue, but understanding exactly what makes something look weightless informs our understanding of the best methods to use in our creations.

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