

Tutorial 12: Deep Metric Learning for Image and Video Understanding

Over the past few years, deep metric learning has been developed as one of the basic techniques in machine learning and successfully applied to a wide range of image and video understanding tasks showing state-of-the-art performance. In this tutorial, we will overview the trend of deep metric learning techniques and discuss how they are employed to boost the performance of various image and video understanding tasks. First, we briefly introduce the basic concept of deep metric learning, and show the key advantages and disadvantages of existing deep metric learning methods in different image and video understanding tasks. Second, we introduce some of our newly proposed deep metric learning methods from several aspects including discriminative deep metric learning, deep localized metric learning, deep coupled metric learning, multi-manifold deep metric learning, deep transfer metric learning, deep adversarial metric learning, deep variational metric learning, and deep hamming metric learning, which are developed for different application-specific image and video understanding tasks such as face recognition, person re-identification, object recognition, action recognition, visual tracking, image set classification, and visual search. Lastly, we will discuss some open problems in deep metric learning to show how to further develop more advanced deep metric learning algorithms for image and video understanding in the future.

Speaker:



Jiwen Lu

Tsinghua University, Department of Automation, China