Abstract:

Learning to classify and localize instances of objects that belong to new categories, while training on just one or very few examples, is a long-standing challenge in modern computer vision. This problem is generally referred to as ‘few-shot learning’. It is particularly challenging for modern deep-learning based methods, which tend to be notoriously hungry for training data. In this talk I will cover several of our recent research papers offering advances on these problems using example synthesis (hallucination) and metric learning techniques and achieving state-of-the-art results on known and new few-shot benchmarks. In addition to covering the relatively well studied few-shot classification task, I will show how our approaches can address the yet under-studied few-shot localization and multi-label few-shot classification tasks.