



Deep Unsupervised Learning: the Road to AI with Common Sense

Yann LeCun
Facebook AI Research and New York University

Abstract

Deep learning is at the root of revolutionary progress in computer vision and speech recognition. Much work is currently being devoted to deep learning for natural language understanding, with applications to dialog systems and translation, as well as in visually-grounded tasks such as VQA and captioning. But the vast majority of deep learning advances use human-annotated data for training. I will argue that training very large deep learning systems so that they can acquire a kind of common sense will require to train them on "natural" data that has not been annotated. Can a machine learn about the nature and constraints of the physical world the way baby animals and humans do?

This is the challenge of AI research for the next decade. I will describe a few promising avenues for research and identify the challenging technical issues.