

Deep Learning Outside the Tech Industry

Technological companies such as Google, Facebook, Microsoft, and others have made heavy investments in deep learning infrastructure. Most of these companies were already familiar with machine learning systems, likely from past experiences with machine learning such as with ad prediction systems or search engines. As a result, shifting to deep learning from older machine learning systems took only a small conceptual shift. Also, the success of past machine learning applications has made tech management quite open to the argument that deep learning could be more widely applied within companies. For these reasons, software companies are likely to remain the most prominent users of deep learning for the near future. If you intend to find a job using deep learning within the next couple years, it's likely that you will end up at a tech company.

However, at the same time, there is a broader shift brewing in which deep learning is beginning to infiltrate industries that historically have not used much machine learning. Unlike simpler machine learning methods, deep learning reduces the need for sophisticated feature preprocessing and allows for direct input of perceptual, textual, and molecular data. As a result, a number of industries are taking note, and large-scale efforts to overhaul these industries have already begun in many innovative start-ups. We will now briefly discuss some of the changes happening in nearby industries and note that many new job opportunities for deep learning experts may become available in the near future.



Applications Are Synergistic

You will soon learn about a number of deep learning applications in different industries. The striking fact about these applications is that all of them use the same fundamental deep learning algorithms. Techniques you've seen such as fully connected networks, convolutional networks, recurrent networks, and reinforcement learning are broadly applicable to any of these fields. In particular, that means core improvements in convolutional network design will yield fruit in pharmaceutical, agricultural, and robotics applications. In reverse, deep learning innovations discovered by roboticists will filter back and strengthen the foundations of deep learning. This virtuous cycle of fundamentals driving application driving fundamentals means that deep learning is a force that's here to stay.

Deep Learning in the Pharmaceutical Industry

Deep learning is showing signs of taking off in a big way in drug discovery. Drug discovery is broken down into multiple phases. There's the preclinical discovery phase,