We are in the midst of a renaissance in Machine Learning and Artificial Intelligence driven by the emergence of large data sets, powerful Graphical Processing Units (GPUs) processors, and new techniques to train billion-neutron multi-layer artificial neural networks known as Deep Learning. Systems trained on raw and sometimes unlabeled data, can now recognize objects, detect human emotion and intent, play video games, translate between languages, and other difficult tasks, sometimes better than humans and most importantly with minimal engineering. The same techniques can potentially improve and simplify computing in data intensive sciences, such as High Energy Physics (HEP). I will overview current Deep Learning activity in HEP, including my efforts aimed event reconstruction in Liquid Argon Time Projection Chambers, and speculate on the long term impact.