

## Use Cloud-Based Watson Deep Learning Platform to Train Models Faster and More Accurate

**Authors :** Susan Diamond

**Abstract :** Machine Learning workloads have traditionally been run in high-performance computing (HPC) environments, where users log in to dedicated machines and utilize the attached GPUs to run training jobs on huge datasets. Training of large neural network models is very resource intensive, and even after exploiting parallelism and accelerators such as GPUs, a single training job can still take days. Consequently, the cost of hardware is a barrier to entry. Even when upfront cost is not a concern, the lead time to set up such an HPC environment takes months from acquiring hardware to set up the hardware with the right set of firmware, software installed and configured. Furthermore, scalability is hard to achieve in a rigid traditional lab environment. Therefore, it is slow to react to the dynamic change in the artificial intelligent industry. Watson Deep Learning as a service, a cloud-based deep learning platform that mitigates the long lead time and high upfront investment in hardware. It enables robust and scalable sharing of resources among the teams in an organization. It is designed for on-demand cloud environments. Providing a similar user experience in a multi-tenant cloud environment comes with its own unique challenges regarding fault tolerance, performance, and security. Watson Deep Learning as a service tackles these challenges and present a deep learning stack for the cloud environments in a secure, scalable and fault-tolerant manner. It supports a wide range of deep-learning frameworks such as Tensorflow, PyTorch, Caffe, Torch, Theano, and MXNet etc. These frameworks reduce the effort and skillset required to design, train, and use deep learning models. Deep Learning as a service is used at IBM by AI researchers in areas including machine translation, computer vision, and healthcare.

**Keywords :** deep learning, machine learning, cognitive computing, model training

**Conference Title :** ICCEE 2018 : International Conference on Cognitive Ecology and Experiments

**Conference Location :** Singapore, Singapore

**Conference Dates :** January 08-09, 2018