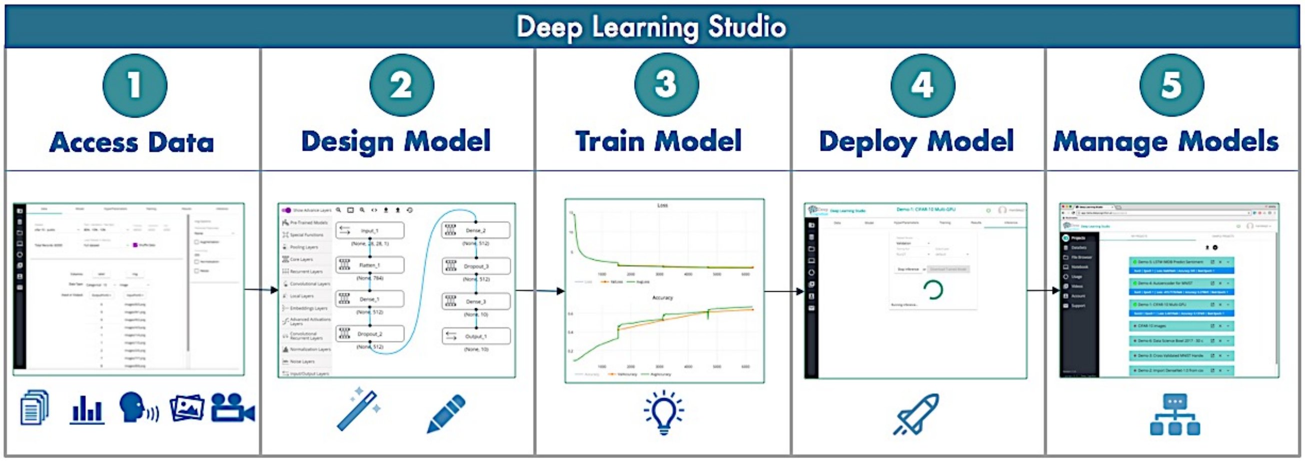
AI Platform - Deep Learning Studio

In early 2017, Deep Learning Studio (DLS) became the first deep learning platform with an advanced visual interface in production. The software provides a comprehensive solution to developing, training, deploying and managing AI. DLS is a flexible solution that works across industries and functions to create AI-powered organizations with new revenue opportunities and lower costs. The software is available as a single-user or enterprise solution (available Q1 2018) in the cloud or hosted on-premise.

How to Become an AI-Powered Organization

Working with AI doesn't have to be difficult or excessively expensive. Deep Learning Studio gives you a cost-effective way to create and deploy AI in 5 simple steps without AI expertise.

We simplify and accelerate AI



Deep Learning Studio

1 Access Data

2 Design Model

3 Train Model

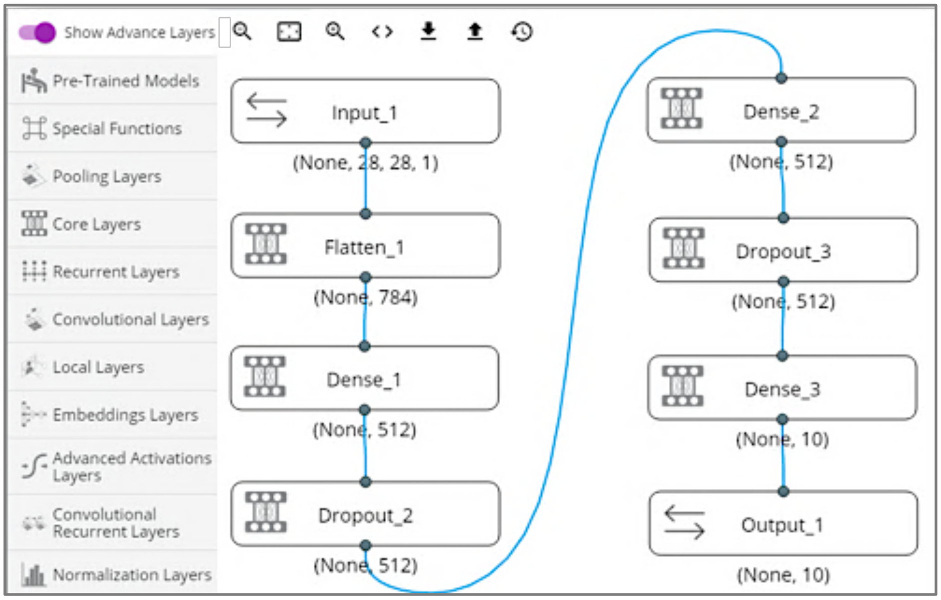
4 Deploy Model

5 Manage Models

The platform supports a variety of features and functionality including:

- Robust integration with leading AI frameworks such as Google's TensorFlow, Keras and Amazon's MXNet
- Flexible data input for both structured and unstructured data from text, numeric, image, video, and audio
- Simple or highly advanced modeling depending on your needs and capabilities
- Automated modeling that leverages AI to create powerful neural networks automatically
- Assisted modeling for advanced users through visual or code-based tools with support for more than 70 layer types
- Able to import models from code
- Automated model versioning and flexible hyperparameter tuning
- Model training using up to 4 GPUs with results saved for each training session (Up to 16 for Enterprise)
- Model deployment through code export, API, or IoT integration (API and IoT Enterprise only)
- Central repository for all AI assets to improve governance, compliance, and security

Deep Learning Studio – Visual Model Editor



Software Compatibility

- **OS** – Ubuntu Linux 14.04, 16.04, 16.10, 17.04, 17.10
- **CPU** – Intel/AMD 64-bit CPU
- **GPU** – Any NVIDIA GPU with compute capability more than 3.0 (see https://developer.nvidia.com/cuda-gpus)
- **RAM** – 4GB or more recommended

Specifications

Supported input types
Images, numeric, array, categorical, arbitrary binary data (Numpy encoded files)

Multiple inputs supported? Yes

Train on Multi-GPU? Yes

Input data augmentation? Yes, including image shift, resize, rotation for images, normalization etc. is supported

Output types
Arbitrary (including images)

Pre-trained/pre-designed networks
WideResNet, SqueezeNet, ResNet50, Inception V3, VGG16, VGG19

Unsupervised learning
Autoencoders

CNN layers types
Convolution 1D, 2D, 3D, Deconvolution 2D, Atrous Convolution 1D, 2D, SeparableConvolution 2D

Transform layers
Upsampling, ZeroPadding, Cropping for 1D, 2D, 3D

Recurrent layers
Simple RNN, GRU & LSTM

Convolutional recurrent Layers
ConvLSTM2D, ConvRecurrent2D

Advance activations
ELU, LeakyReLU, ParametericSoftPlus, PReLU, SReLU, TesholdedReLU

Pooling layers
MaxPooling 1D 2D 3D, GlobalAvgPooling 1D 2D 3D, GlobalMaxPooling 1D 2D 3D, AvgPooling 1D 2D 3D

Topology supported
Fully Directed Acyclic Graph with support of Merge (Sum, Mul, Concat, avg, cos, dot, max)

Regularization
All Layers supports Weight Regularization, Activity Regularization, Bias Constraint, Weight constraint, (L1, L2 functions)

Noise and dropout Layers
Dropout, GaussianDropout, GaussianNoise, Spatial Dropout 1D 2D 3D

Other layers
Dense, Reshape, BatchNormalization, Flatten, Highway, Lambda, Masking, MaxoutDense, Permute, TimeDistributedDense, LocallyConnected 1D 2D

Loss functions
mean_squared_error, mean_absolute_error, mean_absolute_percentage_error, mean_squared_logarithmic_error, squared_hinge, hinge, categorical_hinge, logcosh, categorical_crossentropy, sparse_categorical_crossentropy, binary_crossentropy, kullback_leibler_divergence, cosine_proximity

Optimizers
Adadelta, Adagrad, Adam, Adamax,Nadam, RMSprop, SGD

Training dashboard metrics
GPU Load, GPU free memory, CPU load, System Free Memory, Loss, average and batch level accuracy charts for training and validation sets. speed samples/sec. ETA