

Deep Learning in Production with DeepLearning4J

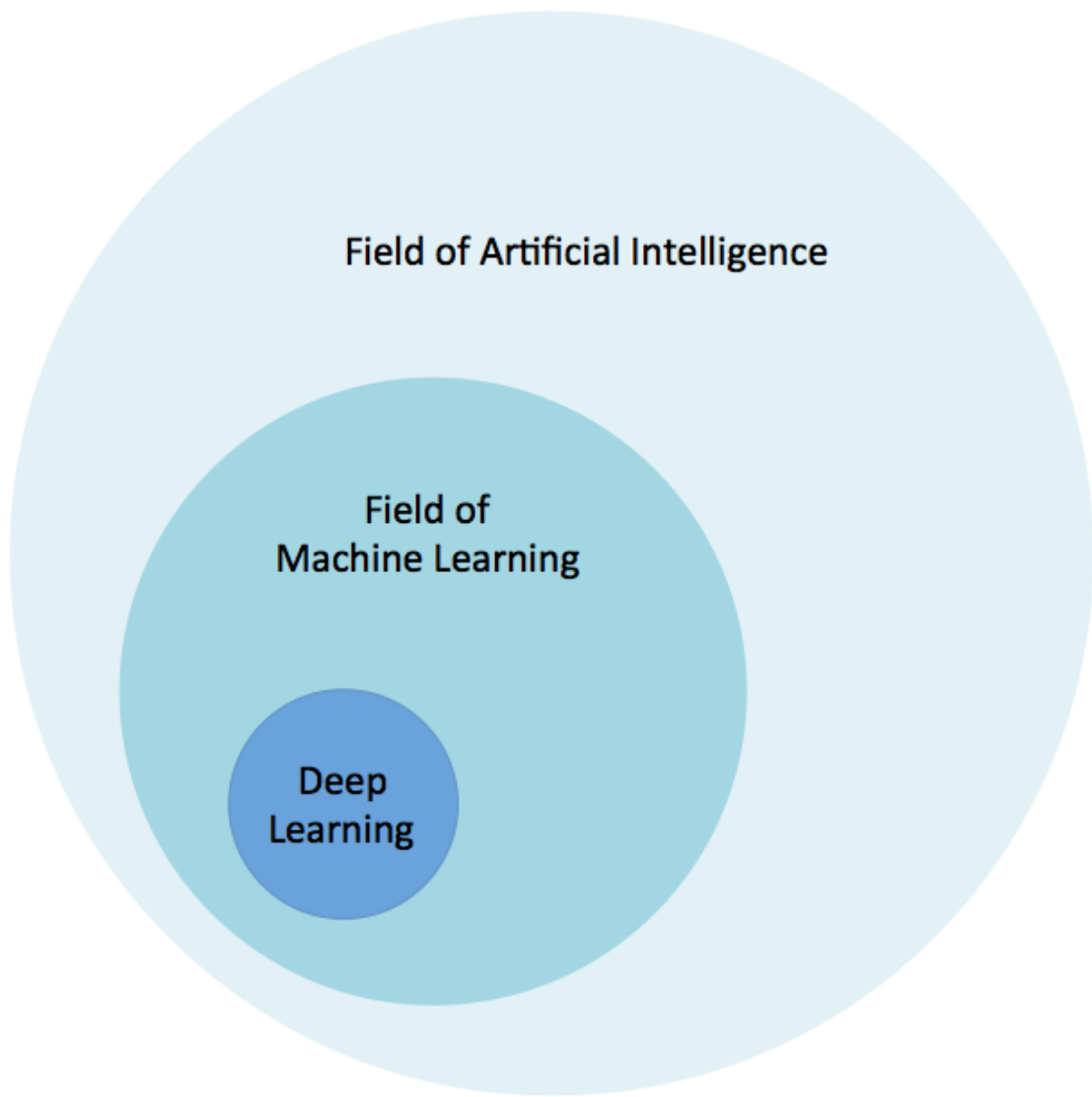
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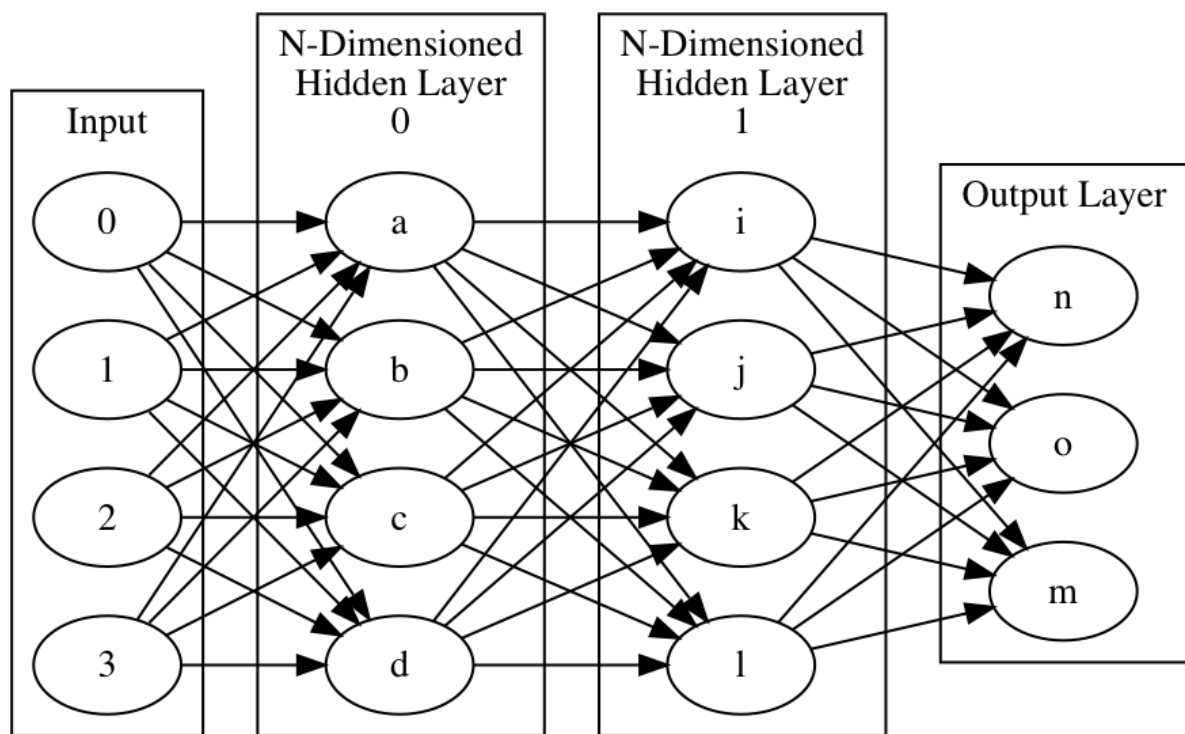


What is DeepLearning

Venn Diagram



Neural Net Picture



What does DeepLearning Do?

- Pattern recognition
 - Voice to text
 - Image classification
 - Image captioning
 - Sequence to sequence
 - Anomaly Detection



DeepLearning4J Overview

Goals of the DeepLearning4J project

- Provide a Toolkit for using DeepLearning on the JVM
 - Enterprise users
 - Security
 - Flexibility

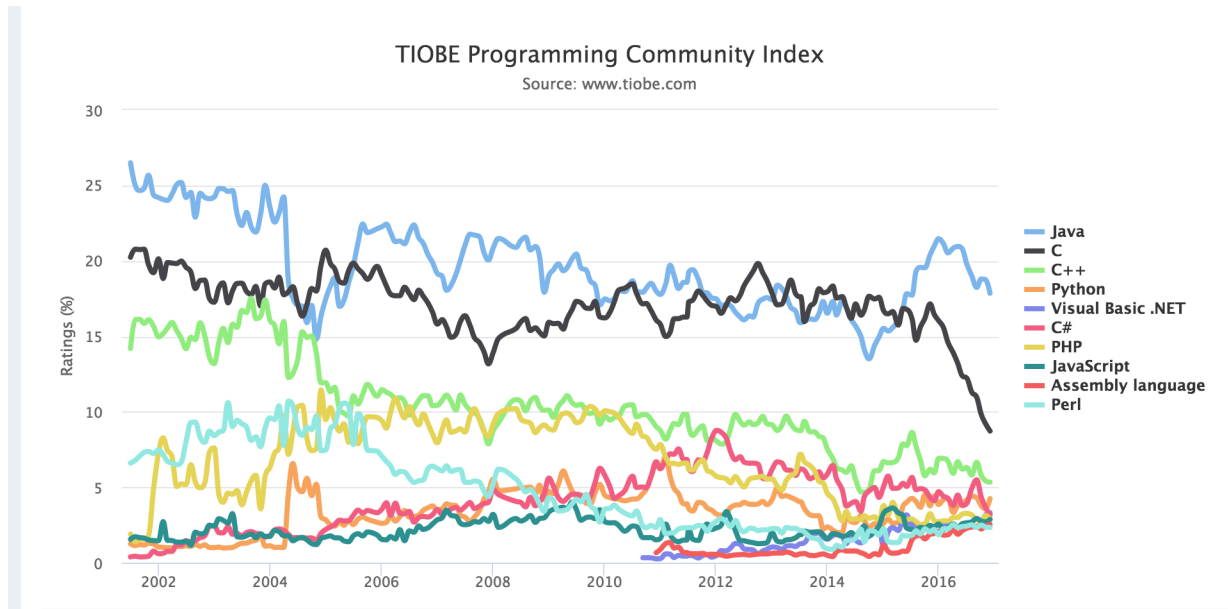


DeepLearning4J sub-projects

- DataVec
 - Tools for ETL
- ND4J
 - NUmeric Arrays
 - NumPY for the JVM
- libnd4j
 - Native Libraries for GPUs/CPUs
- DeepLearning4J
 - Tools to train Neural Networks



Why Java?



DataVec Overview

- Neural networks process numeric arrays
- Datavec helps you get from `your_data` => numeric array

Data Sources

- Log files
- Text documents
- Tabular data
- Images and video
- and more !!

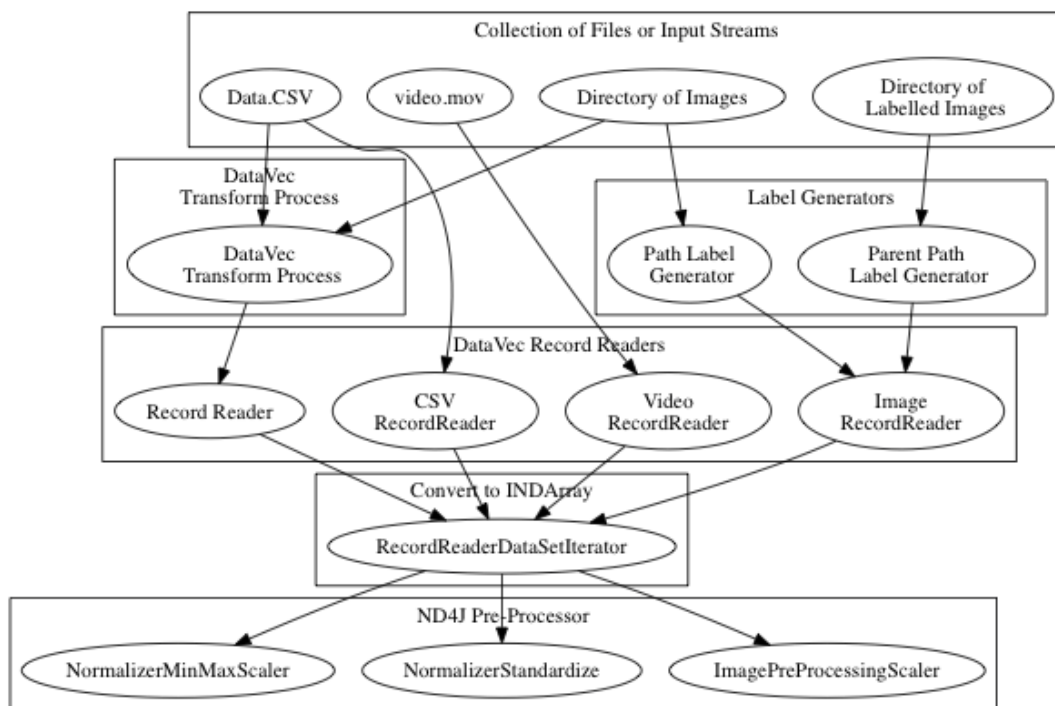


DataVec Features

- Transformation
- Scaling
- Shuffling
- Joining
- Splitting



Diagram of available ETL paths



ND4J Overview

What ND4J Does

- Provides scientific computing libraries
- Main features
 - Versatile n-dimensional array object
 - Multiplatform functionality including GPUs
 - Linear algebra and signal processing functions



ND4J and DeepLearning

- Classes frequently Used
 - DataSet
 - Container for INDArrays of Features/Labels
 - DataSetIterator
 - Build DataSet from RecordReader



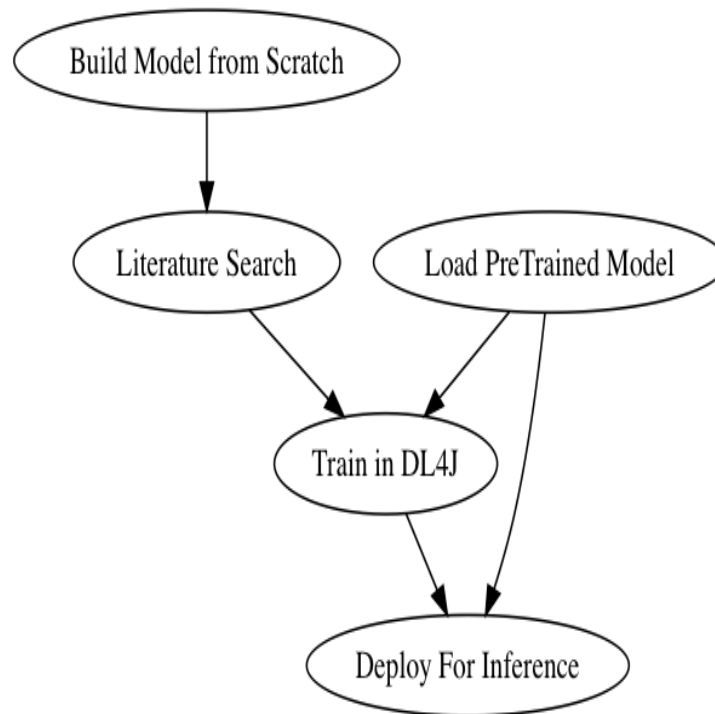
libND4J

- The C++ engine that powers ND4J
 - Speed
 - CPU and GPU support

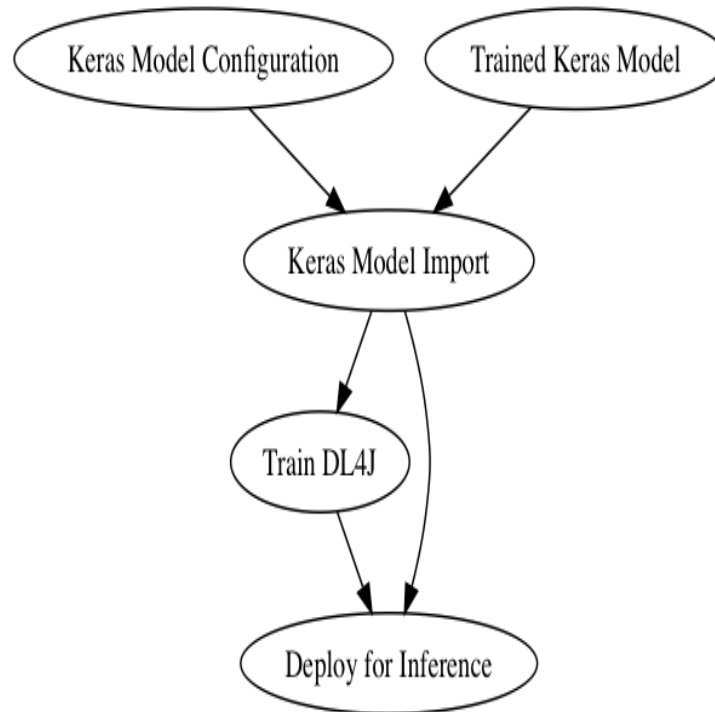


Paths to Production

With DL4J



From Keras



Execution

