TensorFlow is a open source platform for machine learning, that is end-to-end. It is a complete and flexible system that includes tools, libraries, and community sourced resources that allows data scientists to utilize state of the art machine learning tools. TensorFlow was developed by employees of Google Brain (Google’s Machine Learning Research organization). TensorFlow is general enough to be used in a wide area of domains.

TensorFlow can be used with Python, Javascript, C++, and Java giving it a great degree of flexibility. It was first released in February of 2017. It has a multitude of features including; Auto differentiation, Eager Execution, Distribute, Losses, Metrices, TF.nn, and Optimizers.

Auto differentiation is a process that calculates the gradient vector of a model within its parameters, which is used in algorithms to optimize performance. Eager Execution is a mode that evaluates operations immediately instead of being added to a computation executed later. This allows code to be examined one by one through a debugger that allows it to be debugged more clearly since it is executing at each step. Distribute allows TensorFlow models to be distributed across multiple computers, this assists in speeding up computing and training of models in AI. TensorFlow provides loss functions that can assist in computing error or difference in a models output. The metrics in TensorFlow are broadly based and assist in binary, categorical, and sparce datasets. TF.nn is a module for assisting in executing basic neural networks. Optimizers are useful in parameter tuning allowing TensorFlow to optimize various machine learning models performance.

Overall TensorFlow is a comprehensive ML tool that Data Scientist can rely on to execute their machine learning models with a high degree of accuracy.