Machine Learning Building Blocks

Shai Fine (Intel)

Bio

Shai Fine is a Principal Engineer at Intel Labs, acting as the senior machine learning technical lead and lead of the deep learning capstone activities at Intel Collaboration Research Institute for Computation Intelligence (ICRI-CI). Shai joined Intel in 2012 as the Chief data scientist in the Advance Analytics group focusing on solving corporate strategic problems using Big Data and Machine Learning. Prior to Intel, Shai worked for the IBM Research Lab in Haifa, managing the Analytics research department. Shai received his Ph.D. in 1999 in computer science, from the Hebrew University in Israel, and conducted his postdoctoral research at the Human Language Technologies department in IBM's T.J. Watson Research Center in New York. Shai has published over 30 papers in referred journals and conference proceedings, and co-invented 10 patents in various domains of Advanced Analytics.

Abstract

Big Data Analytics attracts a growing interest, more than ever before. This, in turn, creates a flood of innovative ideas, problems and tasks to handle. It also poses challenges for technologists that strive to keep in pace with the explosion of new algorithmic and modelling toolsets, and provide relevant and competitive solutions.

The goal of this work is to help closing this gap. To this end, we will introduce the concept of Machine Learning Building Blocks, which is a finite set of elements that can be mapped to hardware and software primitives and patterns. We will provide some intuition for the definition of the basic building blocks, and specific examples for the mapping to commonly used algorithms and modeling techniques, data characteristics, and usage scenarios.

Next, we will present the design of a machine learning benchmark suite that provides a comprehensive coverage for selected building blocks. The novel construction is based on a selection of representative algorithms, real and synthesized data sets, and activation parameters.