**Gerhard Weiß (1995). Distributed Machine Learning.
Sankt Augustin, Germany: infix Verlag. ISBN 3-929037-75-0.**

Abstract:

There are three different types of **AI** systems that are capable of distributed machine learning: artificial neural networks, rule-based systems, and multi-agent systems. Up to now learning in each of these system types has been studied separately. As a consequence, nothing is known about basic relations and connections between artificial neural learning, rule-based learning and multi-agent learning. This dissertation aims at overcoming this separation and laying the foundation for an integrated perspective of distributed machine learning.

   Two general principles of distributed machine learning are proposed:

- the principle of distributed action-oriented learning according to which learning is based on system-internal estimates of the usefulness of the actions carried out by the system components

- the principle of distributed organizational learning according to which learning is based on the development of system-internal organizational structures imposed on the system components.

The establishment of these principles was largely supported by observations made on available work on artificial neural learning. It is argued that both principles are or can be realized in each of the three system types under consideration. This includes examining considerations on existing approaches to learning in artificial neural networks and the description and analysis of several new action-oriented and organizational approaches to learning in rule-based systems and multi-agent systems.

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