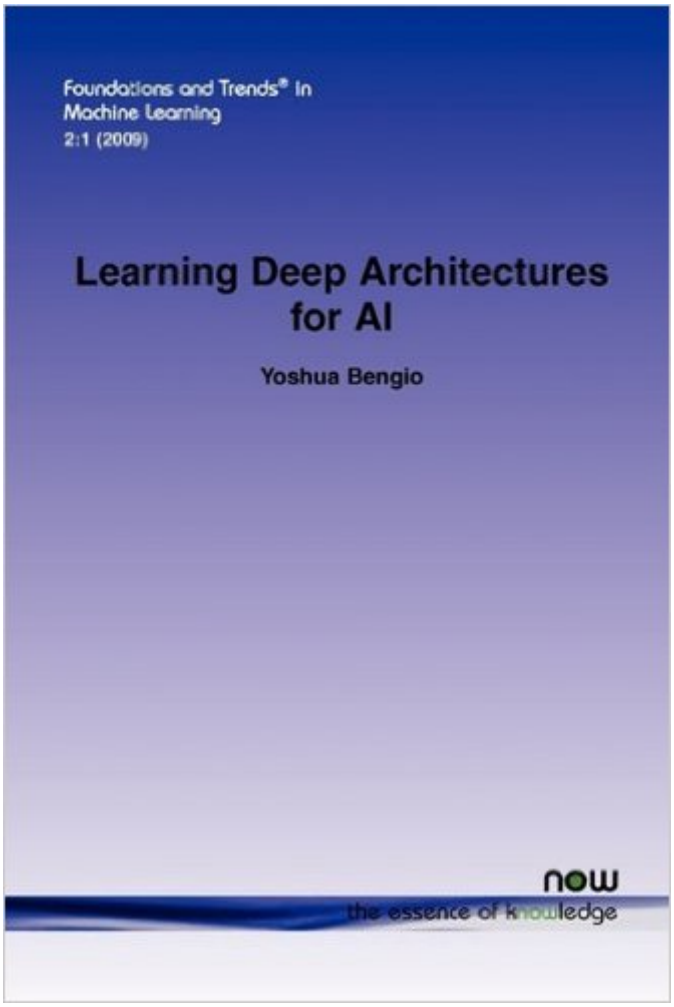
Learning Deep Architectures For AI (Foundations And Trends(r) In Machine Learning)



Synopsis

Can machine learning deliver AI? Theoretical results, inspiration from the brain and cognition, as well as machine learning experiments suggest that in order to learn the kind of complicated functions that can represent high-level abstractions (e.g. in vision, language, and other AI-level tasks), one would need deep architectures. Deep architectures are composed of multiple levels of non-linear operations, such as in neural nets with many hidden layers, graphical models with many levels of latent variables, or in complicated propositional formulae re-using many sub-formulae. Each level of the architecture represents features at a different level of abstraction, defined as a composition of lower-level features. Searching the parameter space of deep architectures is a difficult task, but new algorithms have been discovered and a new sub-area has emerged in the machine learning community since 2006, following these discoveries. Learning algorithms such as those for Deep Belief Networks and other related unsupervised learning algorithms have recently been proposed to train deep architectures, yielding exciting results and beating the state-of-the-art in certain areas. Learning Deep Architectures for AI discusses the motivations for and principles of learning algorithms for deep architectures. By analyzing and comparing recent results with different learning algorithms for deep architectures, explanations for their success are proposed and discussed, highlighting challenges and suggesting avenues for future explorations in this area.

Book Information

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Customer Reviews

I read this book multiple times and found it very useful. However I have almost 20 years of research background in computer vision, and so I personally think that a novice would find it pretty impenetrable because it is quite terse and contains a lot of equations. I think that you have to have a pretty good idea of what Dr Bengio is talking about already before the book becomes meaningful.

Thorough mathematical treatment of deep learning. Extensive body of references to the academic literature. Offers a list of open problems. An excellent concise academic reference.

very very hard to read unless you are already an expert practiin the field. nothing is discussed in details more like a quick reference to the current state of the topic and applications

very little. unfortunately.

Learning Deep Architectures for AI (Foundations and Trends(r) in Machine Learning) Deep Learning: Recurrent Neural Networks in Python: LSTM, GRU, and more RNN machine learning architectures in Python and Theano (Machine Learning in Python) Unsupervised Deep Learning in Python: Master Data Science and Machine Learning with Modern Neural Networks written in Python and Theano (Machine Learning in Python) Deep Learning in Python Prerequisites: Master Data Science and Machine Learning with Linear Regression and Logistic Regression in Python (Machine Learning in Python) Convolutional Neural Networks in Python: Master Data Science and Machine Learning with Modern Deep Learning in Python, Theano, and TensorFlow (Machine Learning in Python) Deep Learning in Python: Master Data Science and Machine Learning with Modern Neural Networks written in Python, Theano, and TensorFlow (Machine Learning in Python) African Dance Trends (Dance and Fitness Trends) (Dance & Fitness Trends) Foundations of Machine Learning (Adaptive Computation and Machine Learning series) Deep Learning: Natural Language Processing in Python with Word2Vec: Word2Vec and Word Embeddings in Python and Theano (Deep Learning and Natural Language Processing Book 1) Deep Learning: Natural Language Processing in Python with GLoVe: From Word2Vec to GLoVe in Python and Theano (Deep Learning and Natural Language Processing) Deep Learning: Natural Language Processing in Python with Recursive Neural Networks: Recursive Neural (Tensor) Networks in Theano (Deep Learning and Natural Language Processing Book 3) Unsupervised Machine Learning in Python: Master Data Science and

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