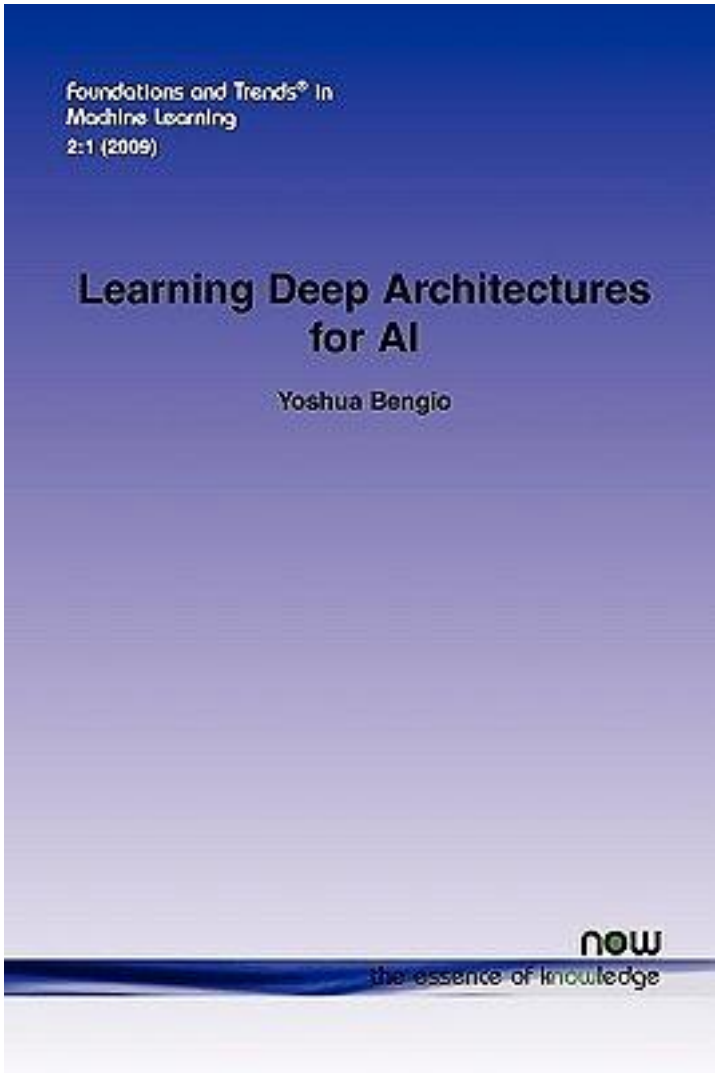
Learning Deep Architectures for AI



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Theoretical results 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 may need deep architectures. Deep architectures are composed of multiple levels of non-linear operations, such as in neural nets with many hidden layers or in complicated propositional formulae re-using many sub-formulae. Searching the parameter space of deep architectures is a difficult task, but learning algorithms such as those for Deep Belief Networks have recently been proposed to tackle this problem with notable success, beating the stateof-the-art in certain areas. This monograph discusses the motivations and principles regarding learning algorithms for deep architectures, in particular those exploiting as building blocks unsupervised learning of single-layer models such as Restricted Boltzmann Machines, used to construct deeper models such as Deep Belief Networks.

作者介绍:

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标签

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programming

评论

非常insightful的小书，把deep learning背后的philosophy以及现有的一些results阐述得很清楚。DL现在应用很广，炒得很火，体系千疮百孔，这是好事。Bengio通过此书指了些明路。另此书不适合DL入门。

Deep Belief Networks / Restricted Boltzmann Machine

看得懵懵懂懂

弃了

相见恨晚。把Hinton的papers翻了个遍，没想到在这本书上才让我对RBM的认识最深刻。

RBM开始实在跟不上了，弃…前面的intuition挺有意思的…

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书评

讲的比较清晰，提供了关键的数学计算内容，作为综述来看是很不错的选择。但是不亲自推一遍细节很难透彻理解，需要一些机器学习、随机过程、信息论和最优化理论的知识。理论框架介绍的很清楚，有助于理解目前各类变种。

具体内容： More precisely ,functions that can be compactly represented by a depth k architecture might require an exponential number of computational elements to be represented by a depth k-1 architecture.
这句意思是k-1层架构可以表示的函数需要的计算元素...

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