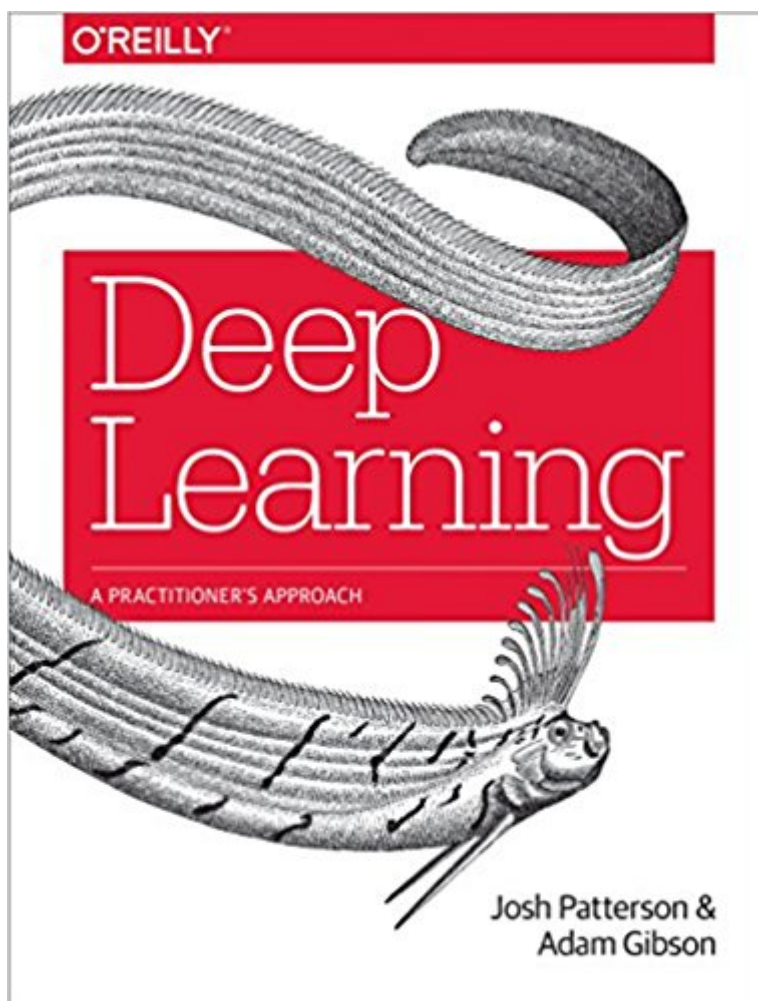


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Deep Learning: A Practitioner's Approach



Synopsis

Although interest in machine learning has reached a high point, lofty expectations often scuttle projects before they get very far. How can machine learning—especially deep neural networks—make a real difference in your organization? This hands-on guide not only provides the most practical information available on the subject, but also helps you get started building efficient deep learning networks. Authors Adam Gibson and Josh Patterson provide theory on deep learning before introducing their open-source Deeplearning4j (DL4J) library for developing production-class workflows. Through real-world examples, you'll learn methods and strategies for training deep network architectures and running deep learning workflows on Spark and Hadoop with DL4J. Dive into machine learning concepts in general, as well as deep learning in particular. Understand how deep networks evolved from neural network fundamentals. Explore the major deep network architectures, including Convolutional and Recurrent. Learn how to map specific deep networks to the right problem. Walk through the fundamentals of tuning general neural networks and specific deep network architectures. Use vectorization techniques for different data types with DataVec, DL4J's workflow tool. Learn how to use DL4J natively on Spark and Hadoop.

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Customer Reviews

[View larger](#) From the Preface Who Should Read This Book? As opposed to starting out with toy examples and building around those, we chose to start the book with a series of fundamentals to take you on a full journey through deep learning. We feel that too many books leave out core

topics that the enterprise practitioner often needs for a quick review. Based on our machine learning experiences in the field, we decided to lead-off with the materials that entry-level practitioners often need to brush up on to better support their deep learning projects. You might want to skip Chapters 1 and 2 and get right to the deep learning fundamentals. However, we expect that you will appreciate having the material up front so that you can have a smooth glide path into the more difficult topics in deep learning that build on these principles. In the following sections, we suggest some reading strategies for different backgrounds. The Enterprise Machine Learning Practitioner We split this category into two subgroups: - Practicing data scientist. - Java engineer.

[View larger](#) **The Practicing Data Scientist** This group typically builds models already and is fluent in the realm of data science. If this is you, you can probably skip Chapter 1 and you'll want to lightly skim Chapter 2. We suggest moving on to Chapter 3 because you'll probably be ready to jump into the fundamentals of deep networks. **The Java Engineer** The Enterprise Executive Java engineers are typically tasked with integrating machine learning code with production systems. If this is you, starting with Chapter 1 will be interesting for you because it will give you a better understanding of the vernacular of data science. Appendix E should also be of keen interest to you because integration code for model scoring will typically touch ND4J's API directly.

[View larger](#) **The Enterprise Executive** Some of our reviewers were executives of large Fortune 500 companies and appreciated the content from the perspective of getting a better grasp on what is happening in deep learning. One executive commented that it had "been a minute" since college, and Chapter 1 was a nice review of concepts. If you're an executive, we suggest that you begin with a quick skim of Chapter 1 to re-acclimate yourself to some terminology. You might want to skip the chapters that are heavy on APIs and examples, however. **The Academic** If you're an academic, you likely will want to skip Chapters 1 and 2 because graduate school will have already covered these topics. The chapters on tuning neural networks in general and then architecture-specific tuning will be of keen interest to you because this information is based on research and transcends any specific deep learning implementation. The coverage of ND4J will also be of interest to you if you prefer to do high-performance linear algebra on the Java Virtual Machine (JVM).

Josh Patterson currently runs a consultancy in the big data machine learning / deep learning space. Previously Josh worked as a Principal Solutions Architect at Cloudera and as a machine learning /

distributed systems engineer at the Tennessee Valley Authority where he brought Hadoop into the smart grid with the openPDC project. Josh has a Masters in Computer Science from the University of Tennessee at Chattanooga where he did published research on mesh networks (tinyOS) and social insect optimization algorithms. Josh has over 17 years in software development and is very active in the open source space contributing to projects such as deeplearning4j, Apache Mahout, Metronome, IterativeReduce, openPDC, and JMotif. Adam Gibson is a deep learning specialist based in San Francisco who works with Fortune 500 companies, hedge funds, PR firms and startup accelerators to create their machine learning projects. Adam has a strong track record helping companies handle and interpret big real-time data. Adam has been a computer nerd since he was 13, and actively contributes to the open-source community through deeplearning4j.org.

Excellent introduction to deep learning in general, easy to understand, even if you don't have a strong mathematical background. A must have if you are using DL4J.

This is a pragmatic tour through what deep learning can do, with examples that are available of Github. It's based on a popular open-source framework with a huge community. And it's also a well written introduction to the basic ideas of deep learning. I'm not an AI expert, but this book gave me the tools and mental models necessary to understand how to deploy a trained neural net in production.

A great introduction to deep learning for individuals without PhDs. Perfect for those who simply want to train, tune, and deploy deep learning models without needing to understand complex theory.

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