

Preface

Like many people of my generation, I've always been addicted to the latest online trends. Around 2005, I remember endlessly refreshing FARK, YTMND, and Delicious for entertainment and news. Now, I shuffle between Reddit and Hacker News, which led me to witness TensorFlow's ceremonious debut on November 9, 2015. The post appeared at the top of the front page on Hacker News and received hundreds of comments—that energy overshadowed anything else on the website.

At that time, machine-learning tools were already fragmented into a zoo of libraries; the ecosystem relied on experimental software packages from academic labs and proprietary solutions from industry giants. When Google revealed TensorFlow, the community's responses were mixed. Despite Google's history of retiring beloved services (such as Google Reader, iGoogle, Knol, and Google Wave), the company also had a history of nurturing open source projects (such as Android, Chromium, Go, and Protobuf).

Bets had to be made right then and there about whether to adopt TensorFlow. Although many chose to wait until the library developed, a few dived right in. I sprinted through the official documentation, mastered the basics, and was ready to apply the technology to my doctoral research at UCLA. I accumulated notes diligently, having no idea that the pages I wrote for myself to navigate the TensorFlow documentation would develop into a book.

Around that time, an acquisitions editor at Manning Publications contacted me for a second opinion on a new Haskell book—part of their due diligence procedure, because I'm the author of *Haskell Data Analysis Cookbook* (Packt Publishing, 2014). The journey of writing the book you're reading right now began with my reply: "On another note, have you heard about Google's new machine-learning library called TensorFlow?"

Machine Learning with TensorFlow started with a traditional table of contents, featuring subjects you might expect in any machine-learning book, but it evolved to cover topics that lacked online tutorials. For example, it's difficult to find online TensorFlow implementations of hidden Markov models (HMMs) and reinforcement learning (RL). Each iteration of editing the book introduced more concepts like these that didn't have sufficient existing sources.

Online TensorFlow tutorials are often too brief or too advanced for a beginner who wants to explore the art of machine learning. The purpose of this book is to fill those gaps, and I believe it does exactly that. If you're new to machine learning or TensorFlow, you'll appreciate the book's down-to-earth teaching style.

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