Preface

We've reached a turning point in the story of machine learning where the technology has moved from the realm of theory and academics and into the "real world"—that is, businesses providing all kinds of services and products to people across the globe. While this shift is exciting, it's also challenging, as it combines the complexities of machine learning models with the complexities of the modern organization.

One difficulty, as organizations move from experimenting with machine learning to scaling it in production environments, is maintenance. How can companies go from managing just one model to managing tens, hundreds, or even thousands? This is not only where MLOps comes into play, but it's also where the aforementioned complexities, both on the technical and business sides, appear. This book will introduce readers to the challenges at hand, while also offering practical insights and solutions for developing MLOps capabilities.

Who This Book Is For

We wrote this book specifically for analytics and IT operations team managers, that is, the people directly facing the task of scaling machine learning (ML) in production. Given that MLOps is a new field, we developed this book as a guide for creating a successful MLOps environment, from the organizational to the technical challenges involved.

How This Book Is Organized

This book is divided into three parts. The first is an introduction to the topic of MLOps, diving into how (and why) it has developed as a discipline, who needs to be involved to execute MLOps successfully, and what components are required.

The second part roughly follows the machine learning model life cycle, with chapters on developing models, preparing for production, deploying to production, monitoring, and governance. These chapters cover not only general considerations, but MLOps considerations at each stage of the life cycle, providing more detail on the topics touched on in Chapter 3.

The final part provides tangible examples of how MLOps looks in companies today, so that readers can understand the setup and implications in practice. Though the company names are fictitious, the stories are based on real-life companies' experience with MLOps and model management at scale.

Conventions Used in This Book

The following typographical conventions are used in this book:

Italic

Indicates new terms, URLs, email addresses, filenames, and file extensions.

`*Constant width*`

Used for program listings, as well as within paragraphs to refer to program elements such as variable or function names, databases, data types, environment variables, statements, and keywords.

`Constant width bold`

Shows commands or other text that should be typed literally by the user.

`*Constant width italic*`

Shows text that should be replaced with user-supplied values or by values determined by context.

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