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Designing Machine Learning Systems

Machine learning systems are both complex and unique. Complex because they consist of many different components and involve many different stakeholders. Unique because they're data dependent, with data varying wildly from one use case to the next. In this book, you'll learn a holistic approach to designing ML systems that are reliable, scalable, maintainable, and adaptive to changing environments and business requirements.

Author Chip Huyen, co-founder of Claypot AI, considers each design decision—such as how to process and create training data, which features to use, how often to retrain models, and what to monitor—in the context of how it can help your system as a whole achieve its objectives. The iterative framework in this book uses actual case studies backed by ample references.

This book will help you tackle scenarios such as:

- **Engineering data and choosing the right metrics to solve a business problem**
- **Automating the process for continually developing, evaluating, deploying, and updating models**
- **Developing a monitoring system to quickly detect and address issues your models might encounter in production**
- **Architecting an ML platform that serves across use cases**
- **Developing responsible ML systems**

"This is, simply, the very best book you can read about how to build, deploy, and scale machine learning models at a company for maximum impact."

—Josh Wills
Software Engineer at WeaveGrid and former Director of Data Engineering, Slack

"In a blooming but chaotic ecosystem, this principled view on end-to-end ML is both your map and your compass: a must-read for practitioners inside and outside of Big Tech."

—Jacopo Tagliabue
Director of AI, Coveo

Chip Huyen is co-founder of Claypot AI, a platform for real-time machine learning. Through her work at NVIDIA, Netflix, and Snorkel AI, she's helped some of the world's largest organizations develop and deploy ML systems. Chip based this book on her lectures for CS 329S: Machine Learning Systems Design, a course she teaches at Stanford University.

MACHINE LEARNING

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