Daniel Whitenack

Machine Learning With Go

Implement Regression, Classification, Clustering, Time-series Models, Neural Networks, and More using the Go Programming Language

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Machine Learning With Go

The mission of this book is to turn readers into productive, innovative data analysts who leverage Go to build robust and valuable applications. To this end, the book clearly introduces the technical aspects of building predictive models in Go, but it also helps the reader understand how machine learning workflows are applied in real-world scenarios.

Machine Learning With Go shows readers how to be productive in machine learning while also producing applications that maintain a high level of integrity. It also gives readers patterns to overcome challenges that are often encountered when trying to integrate machine learning in an engineering organization.

The readers will begin by gaining a solid understanding of how to gather, organize, and parse real-work data from a variety of sources. Readers will then develop a solid statistical toolkit that will allow them to be able to quickly gain intuition about the content of a dataset. Finally, the readers will gain hands-on experience implementing essential machine learning techniques (regression, classification, clustering, and so on) with relevant Go packages.

Finally, the reader will have a solid machine learning mindset and a powerful Go toolkit of techniques, packages, and examples implementations.

Things you will learn:

- Learn about data gathering, organization, parsing, and cleaning
- Explore matrices, linear algebra, statistics and probability
- See how to evaluate and validate models
- Look at regression, classification, and clustering
- Learn about neural networks and deep learning
- Utilize time series models and anomaly detection
- Get to grips with techniques for deploying and distributing analyses and models
- Optimize machine learning workflow techniques

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About the Author

Daniel Whitenack (`@dwhitena`), PhD, is a trained data scientist working with Pachyderm (`@pachydermIO`). Daniel develops innovative, distributed data pipelines that include predictive models, data visualizations, statistical analyses, and more. He has spoken at conferences around the world (GopherCon, JuliaCon, PyCon, ODSC, Spark Summit, and more), teaches data science/engineering at Purdue University (`@LifeAtPurdue`), and, with Ardan Labs (`@ardanlabs`), maintains the Go kernel for Jupyter, and is actively helping to organize contributions to various open source data science projects.

I would like to thank my wife for her boundless patience and support while writing this book.
I would also like to acknowledge the many wonderful gophers and data scientists that have mentored me, collaborated with me, and encouraged me. These include Bill Kennedy, Brendan Tracey, Sebastien Binet, Alex Sanchez, the whole team at Pachyderm (including Joey Zwicker and Joe Doliner), Chris Tava, Mat Ryer, David Hernandez, Xuanyi Chew, the team at Minio (including Anand Babu Periasamy and Garima Kapoor), and many more!

Soli Deo Gloria

About the Reviewers

Niclas Jern has been using Go to solve interesting problems at scale since Go 1.0. He graduated from Abo Akademi University with an MSc in computer engineering, majoring in software engineering.

He enjoys using Go and other programming languages to tackle problems, especially in the fields of data processing and machine learning. His hobbies include long walks, lifting heavy metal objects at the gym, the occasional rant at `http://www.njern.co`, and spending quality time with his wife and daughter.

Niclas currently works at Walkbase, a company he founded together with some of his class mates from Abo Akademi university, where he leads the engineering team, which is tackling the data processing problems that come with revolutionizing retail analytics.

Richard Townsend became the top contributor to GoLearn in 2014 (and hence is responsible for a lot of its odd behavior) while studying for his undergraduate degree at Warwick University. Since then, he's worked for a top UK technology company on everything from embedded systems to Android operating system frameworks, and currently spends his time optimizing web browsers. He still spends a significant amount of time on sentiment analysis (co-authoring two papers on it) and other natural language processing tasks like part of speech tagging often using the latest deep learning technologies.

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