Machine Learning for Engineers

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This self-contained introduction to machine learning, designed from the start with engineers in mind, will equip students with everything they need to start applying machine learning principles and algorithms to real-world engineering problems. With a consistent emphasis on the connections between estimation, detection, information theory, and optimization, it includes: an accessible overview of the relationships between machine learning and signal processing, providing a solid foundation for further study; clear explanations of the differences between state-of-the-art techniques and more classical methods, equipping students with all the understanding they need to make informed technique choices; demonstration of the links between information-theoretical concepts and their practical engineering relevance; reproducible examples using Matlab, enabling hands-on student experimentation. Assuming only a basic understanding of probability and linear algebra, and accompanied by lecture slides and solutions for instructors, this is the ideal introduction to machine learning for engineering students of all disciplines.
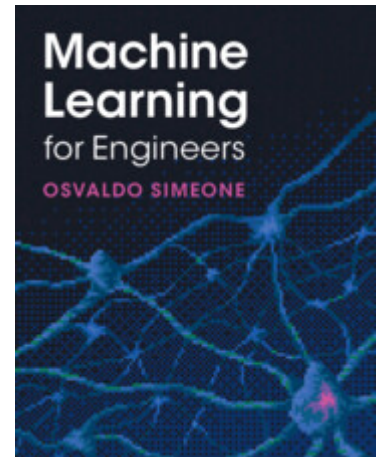
Find out more

Key features

- A book on machine learning written for engineers, by an engineer
- An accessible text with a unified information-theoretic framework
- Highlights connections between machine learning and estimation, detection, information theory, and optimization
- Offers concise but extensive coverage of state-of-the-art topics with simple, reproducible examples
- Derives modern methods, such as generative adversarial networks, from first principles, revealing their connection with standard techniques
- Divided into useful parts, allowing the book easily to be mapped to either a one- or a two-semester course

Resources

There are free resources and Instructor restricted resources available for this textbook [from the resources page.]()

About the book

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