Machine Learning: a Conceptual Approach offers a comprehensive introduction to the concepts, approaches and applications of machine learning algorithms, from the simple to the current state-of-the-art. This book covers 35 machine learning algorithms, one chapter for each, using a concise and conceptual approach. To make the book approachable for non-technical leadership, as well as beginners, practitioners, and experienced folks, each chapter is split into five primary sections:

- "*The Bumper Sticker*": a single sentence at the beginning of each chapter that summarizes the algorithm into a catchy, easy to remember phrase.
- "*The Concept*": the novice reader is introduced to the algorithm using real-world examples, simple descriptions, and colorful graphics.
- "*Digging Deeper*": the intermediate reader is provided a tutorial wherein each step of the algorithm is described in detail, "rules of thumb" are given, and results are explained so that the reader gains the intuition necessary to apply the algorithm in practice.
- "*Algorithm Description*": the advanced reader is provided a complete mathematical treatment of the algorithm, so that they will be equipped with the skills necessary to modify or extend existing machine learning libraries.
- "*Advantages & Limitations*": this final section lists examples of when to use the algorithm in practice, and (if applicable) provide alternative algorithms.

Each chapter also includes complete software examples, written in both Matlab and Python, that can be used as either a template or copied directly to reader projects.

Paul F. Roysdon holds a Ph.D. Electrical Engineering (focus in Applied Mathematics & Statistics), from the University of California, as well as an M.S. in Aeronautical Engineering, M.S. in Electrical Engineering, M.S. in Mechanical Engineering, and B.S. in both Aeronautical & Mechanical Engineering. He has nearly twenty years experience in engineering and applied mathematics, solving real-world problems. He formerly worked in the private sector, with experience in aircraft design of military subsonic and supersonic unmanned vehicles, as well as software development and hardware testing of autopilots and navigation systems. He currently serves as a Chief Data Scientist at the Department of Defense.

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