Markov Chains and Decision Processes for Engineers and Managers

Theodore J. Sheskin
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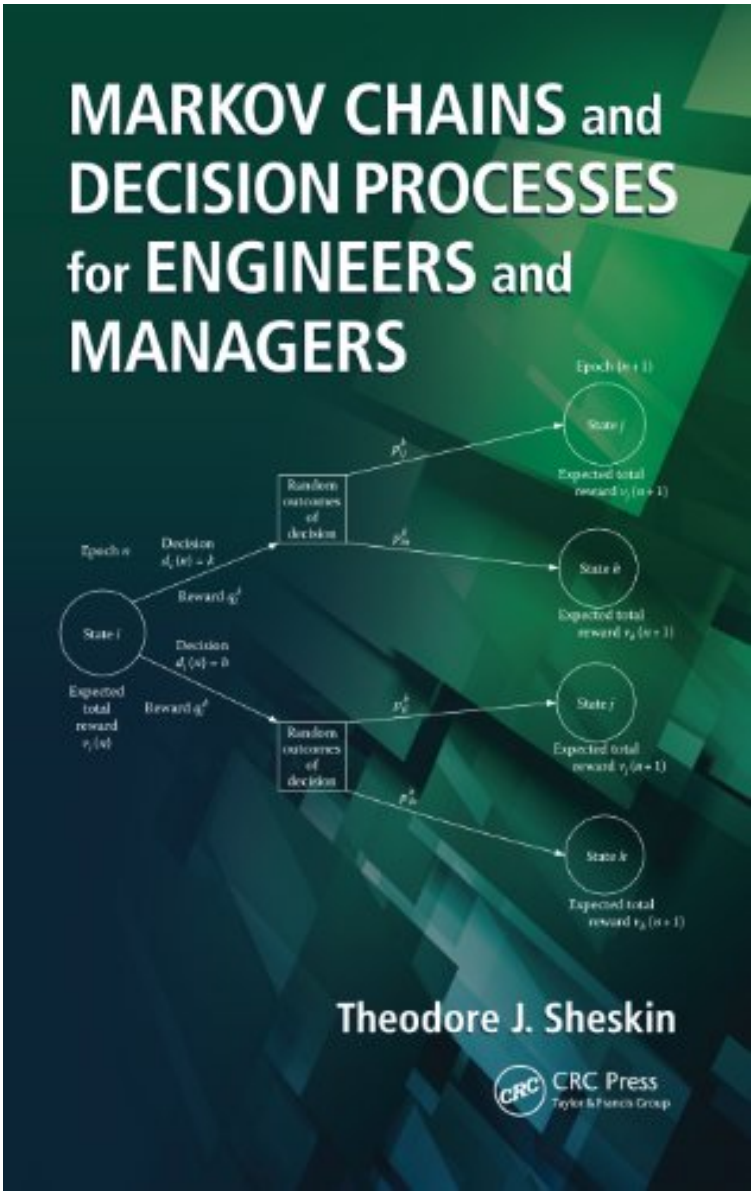

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Theodore J. Sheskin : Markov Chains and Decision Processes for Engineers and Managers before purchasing it in order to gage whether or not it would be worth my time, and all praised Markov Chains and Decision Processes for Engineers and Managers:

Recognized as a powerful tool for dealing with uncertainty, Markov modeling can enhance your ability to analyze

complex production and service systems. However, most books on Markov chains or decision processes are often either highly theoretical, with few examples, or highly prescriptive, with little justification for the steps of the algorithms used to solve Markov models. Providing a unified treatment of Markov chains and Markov decision processes in a single volume, Markov Chains and Decision Processes for Engineers and Managers supplies a highly detailed description of the construction and solution of Markov models that facilitates their application to diverse processes. Organized around Markov chain structure, the book begins with descriptions of Markov chain states, transitions, structure, and models, and then discusses steady state distributions and passage to a target state in a regular Markov chain. The author treats canonical forms and passage to target states or to classes of target states for reducible Markov chains. He adds an economic dimension by associating rewards with states, thereby linking a Markov chain to a Markov decision process, and then adds decisions to create a Markov decision process, enabling an analyst to choose among alternative Markov chains with rewards so as to maximize expected rewards. An introduction to state reduction and hidden Markov chains rounds out the coverage.In a presentation that balances algorithms and applications, the author provides explanations of the logical relationships that underpin the formulas or algorithms through informal derivations, and devotes considerable attention to the construction of Markov models. He constructs simplified Markov models for a wide assortment of processes such as the weather, gambling, diffusion of gases, a waiting line, inventory, component replacement, machine maintenance, selling a stock, a charge account, a career path, patient flow in a hospital, marketing, and a production line. This treatment helps you harness the power of Markov modeling and apply it to your organizationrsquo;s processes.

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