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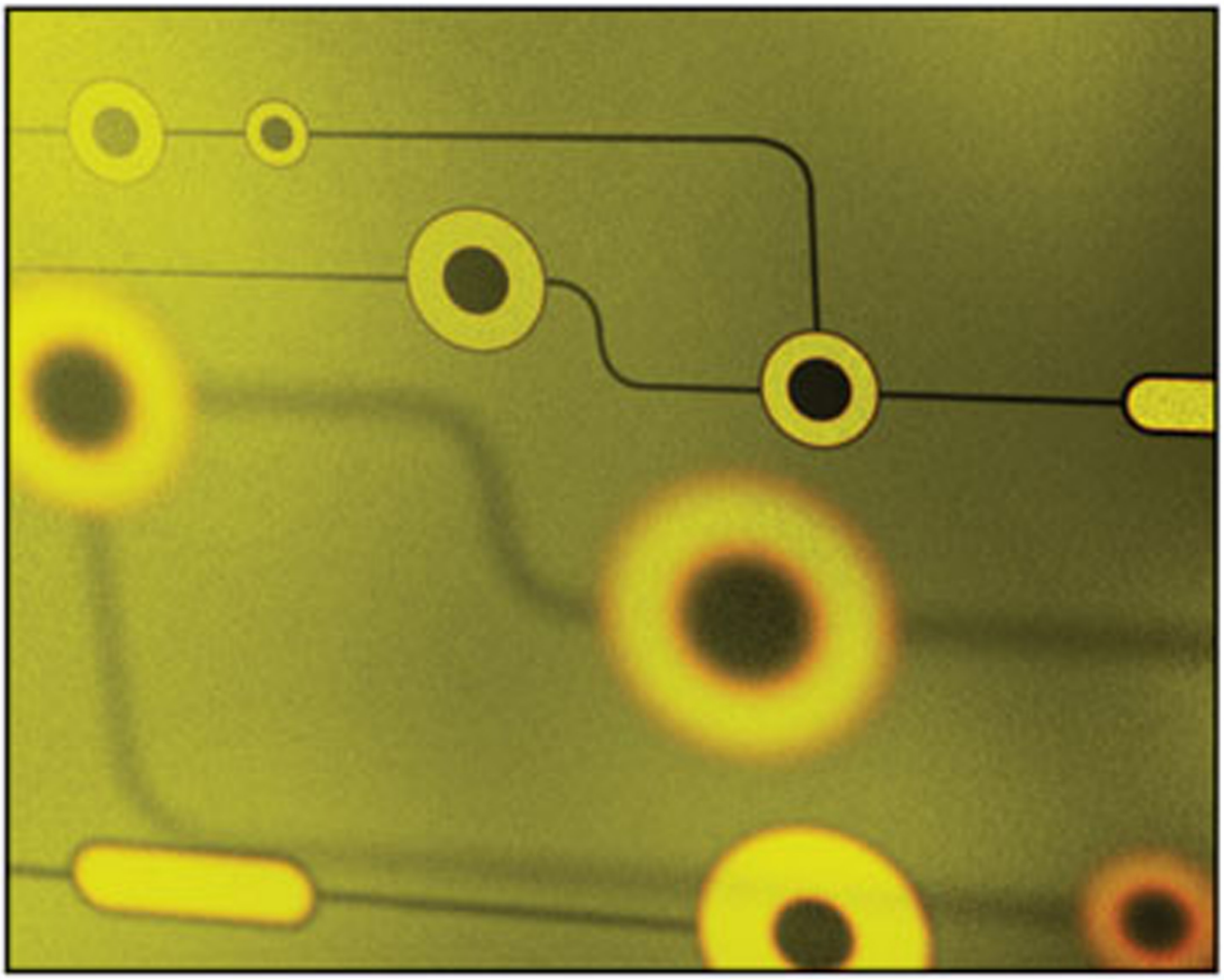
DATA MINING AND MEDICAL KNOWLEDGE MANAGEMENT

CASES AND APPLICATIONS



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Data Mining and Medical Knowledge Management:
Cases and Applications

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General Applications

Detailed Table of Contents

This chapter introduces the basic notions of ontologies, presents a survey of their use in medicine, and explores some related issues: knowledge bases, terminology, information retrieval. It also addresses the issues of ontology design, ontology representation, and the possible interaction between data mining and ontologies.

Health managers and clinicians often need models that try to minimize several types of costs associated with healthcare, including attribute costs (e.g. the cost of a specific diagnostic test) and misclassification costs (e.g. the cost of a false negative test). This chapter presents some concepts related to cost-sensitive learning and cost-sensitive classification in medicine and reviews research in this area.

This chapter describes the theoretical background of artificial neural networks (architectures, methods of learning) and shows how these networks can be used in medical domain to solve various classification and regression problems.

This chapter introduces classification networks composed of preprocessing layers and classification networks, and compares them with "classical" multilayer percpetrons on three medical case studies.

Section II
General Applications

This section presents work that is general in the sense of a variety of methods or variety of problems described in each of the chapters.