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| Nota di contenuto | Cover; Title Page; Copyright; Contents; Foreword; Chapter 1. Symbolic Representation and Inference of Regulatory Network Structures; 1.1. Introduction: logical modeling and abductive inference in systems biology; 1.2. Logical modeling of regulatory networks; 1.2.1. Background; 1.2.2. Logical model of signed-directed networks; 1.2.2.1. Prior knowledge; 1.2.2.2. Rule-based underlying model; 1.2.2.3. Integrity constraints; 1.2.2.4. Inferring signed-directed networks and explanatory reasoning; 1.3. Evaluation of the ARNI approach; 1.3.1. ARNI predictive power 1.3.1.1. Prediction under biological and experimental noise 1.3.1.2. Prediction under incomplete data; 1.3.2. ARNI expressive power; 1.3.2.1. Network motif representations; 1.3.2.2. Representing complex interactions; 1.4. ARNI assisted scientific methodology; 1.4.1. Testing biological hypotheses; 1.4.1.1. Testing cross-talk between signaling pathways; 1.4.2. Informative experiments for networks discrimination; 1.5. Related work and comparison with non-symbolic approaches; 1.5.1. Limitations and future work; 1.6. Conclusions; 1.7. Bibliography |

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Sommario/riassunto

Systems Biology is the systematic study of the interactions between the components of a biological system and studies how these interactions give rise to the function and behavior of the living system. Through this, a life process is to be understood as a whole system rather than the collection of the parts considered separately. Systems Biology is therefore more than just an emerging field: it represents a new way of thinking about biology with a dramatic impact on the way that research is performed. The logical approach provides an intuitive method to provide explanations based on an expres
