Andelic / Baressi Šegota

Navigating Complexity

Synthesis and Machine Learning Strategies for Cancer Classification Through Gene Expression in Small Datasets

Navigating Complexity examines how machine learning can address cancer classification using gene-expression data when samples are scarce and features are numerous. Centered on curated microarray datasets, the book presents a rigorous, reproducible workflow covering dataset selection, statistical analysis, feature reduction, scaling, oversampling, synthetic data generation, and multi-metric evaluation. This book places particular emphasis on Genetic Programming Symbolic Classifiers, which produce transparent mathematical expressions rather than opaque predictions. The authors also explore ensemble strategies that combine symbolic models to improve robustness and generalization. Bridging artificial intelligence, bioinformatics, and cancer diagnostics, this book offers researchers and graduate students both methodological guidance and practical insight.

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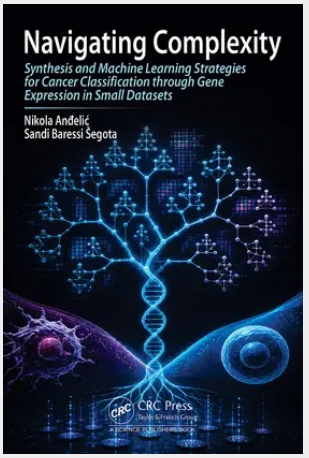

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