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A Hybrid Data Gravitation based Classification Algorithm Applied to Gene Expression Data
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A new Supervised Image Classification Algorithm Using Data set Partition
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An Improved Fusion Algorithm Based on RBF Neural Network and Its Application in Data Mining
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Classification of File Duplication by Hierarchical Clustering Based on Similarity Relations
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DCT MFA Subspace Hyperspectral Remote Sensing Images Terrain Classification
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Research on Decision Tree Algorithm
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Semantic Analysis of Social Media and Associated Psychotic Behavior
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A Biomedical Events Extracted Approach Based on Phrase Structure Tree
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A Hybrid Model for Continuous Blood Pressure Estimation from a PPG Signal based on MIV and GA-BP Neural Network
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A MPI based Parallel Algorithm for Inferring Gene Regulatory Networks
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An Optimized Fuzzy Clustering Algorithm for Brain Magnetic Resonance Image Segmentation
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Celastrol Binds to HSP90 Trigger Functional Protein Interaction Network against Pancreatic Cancer
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Comparison of Software Packages for Bayesian Network Learning in Gene Regulatory Relationship Mining
Yu Kang, Xuan Yang, Menghai Sun, Junfan Hu, Zhiman Zhong........................................................................................2010

Discovering Genomic Islands in Microbial Genomes Using a Genetic Algorithm
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Identification of Key Genes and Pathways Involved in Compensatory Pancreatic Beta Cell Hyperplasia during Insulin Resistance
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Fairness Maintenance in Social Regional Resource Allocation Management
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Forecasting of the EV’s Charging Amount of Electricity Based on Curves Clustering
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Geospatial Preprocessing for Situational Assessment through Hydraulic Simulations
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Knowledge Characterization and Evolution Methodology of Emergency Scenario Based on Hybrid Petri Net
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