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Utilising improved cellular automata to simulate and analyse image evolution and optimisation. (English) Zbl 1453.68108

Summary: This paper introduces the cellular automata, current research of the field and so on, comprehensively uses principal component analysis, decision tree and neural network methods to improve cellular automata model and makes simulation and analysis of the spatial evolution of experiment image by using the improved models, then from optimisation strategy and other aspects it gives some improvement discussion and optimisation methods.

MSC:
68Q80 Cellular automata (computational aspects)
62H25 Factor analysis and principal components; correspondence analysis
68U10 Computing methodologies for image processing
94A08 Image processing (compression, reconstruction, etc.) in information and communication theory

Keywords:
cellular automata; simulation; image evolution; optimisation; image analysis; principal component analysis; PCA; decision tree; neural networks; spatial evolution

Full Text: DOI