



图4 碑帖自然腐蚀噪声环境 FCNN 汉字重构

5 结 论

作为一种并行模拟逻辑可编程阵列, FCNN 正在成为形态学实时图像处理中新的工具. 本文基于 FCNN 所实现的数学形态学二值图像和灰度图像重构算法, 研究在自然腐蚀噪声条件下, 书法碑帖汉字的重构技术, 实现了噪声抑制和汉字提取的一种 FCNN 方案.

参 考 文 献

- 1 Chua L O, Yang L. Cellular neural networks: Theory and applications. IEEE Trans on Circuits and Systems, 1988, 35(10): 1257~1290
- 2 Roska T, Chua L O. The CNN universal machine: An analogic array computer. IEEE Trans on Circuits and Systems, 1993, 40(3): 163~167
- 3 Chua L O, Roska T, Venetianer P L. The CNN is universal as the Turing machine. IEEE Trans on Circuits and Systems, 1993, 40(4): 289~291
- 4 Yang T, Yang L B. Fuzzy cellular neural network: Theory. In: Proc Int'l Workshop on Cellular Neural Networks and Their Applications (CNNA'96). Seville, IEEE, New York, 1996. 225~230
- 5 Yang T, Yang L B. Application of fuzzy cellular neural network to morphological grey-scale reconstruction. Int'l Journal Circuit Theory and Application, 1997, 25(3): 153~165
- 6 Yang T, Yang L B. Fuzzy cellular neural network: A new paradigm for image processing. Int'l Journal Circuit Theory and Application, 1997, 25(6): 469~481
- 7 Serra J. Image Analysis and Mathematical Morphology. New York: Academic Press, 1982
- 8 Serra J. Image Analysis and Mathematical Morphology, Part II: Theoretical Advances. New York: Academic Press, 1988
- 9 Haralick R M, Sternberg S R, Zhuang X. Image analysis using mathematica morphology. IEEE Trans on Pattern Analysis and Machine Intelligence, 1987, 9(7): 532~550
- 10 Vincent L. Morphological grey-scale reconstruction in image analysis: Applications and efficient algorithms. IEEE Trans on Image Processing, 1993, 2(2): 176~201