Image Processing by Using Switching System with Cellular Neural Networks and Delayed Cellular Neural Networks

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SUMMARY

Recently, Delayed Cellular Neural Networks (DCNN) has proposed to solve time-varying image processing[1]-[2]. In the conventional Cellular Neural Networks (CNN), the each cell connects directly to only its neighboring cells. Moreover the conventional CNN depends on current information from it's neighboring cells alone. On the other hand, the DCNN depends on past and current information from it's neighboring cells. Therefore, the DCNN is usually applied for time-varying image processing. However, studies of applying the DCNN to image processing have not much researched. Thus, in our previous study, we applied the DCNN to image processing and obtained good results. However, we have a problem of the noise in image processing. We consider past information of the DCNN have a profound effect. For example, the human builds on knowledge from past information. Past experience is an important process of current self. However, past experience is opposite effect to the human, when past experience is too profound. We considered this concept is effective for our previous study.

In this study, we propose the new algorithm with switching system with the conventional CNN and the DCNN. Our proposed method is switched the conventional CNN and the DCNN by iteration values. Therefore, our proposed method is less past influence than the DCNN. In order to confirm the effectiveness of the proposed method, we investigate the effect of the proposed method in image processing.

REFERENCES

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