

sequence of interesting regions in a large image. Therefore, an extension of this algorithm to a dynamic linked grouping may be helpful to realize a stronger competition among assemblies of the same hypotheses.

Appendix

Parameters of the above mentioned equations are given here. In all simulations the local excitatory connections remained the same and are shown in figure 18. Global inhibitory weights are chosen in all simulations to:

0	0	0	0	0	0	0
0	0	0.2	0.3	0.2	0	0
0	0.2	0.8	0.9	0.8	0.2	0
0	0.3	0.9	0.3	0.9	0.3	0
0	0.2	0.8	0.9	0.8	0.2	0
0	0	0.2	0.3	0.2	0	0
0	0	0	0	0	0	0

Fig. 18: Weights ($w_{ki lj}$) from the central node ki to itself and to its neighbors lj .

Due to a limited memory capacity, the resolution of the relaxation plane is reduced compared to the resolution of the hypothesis-maps - the block effect is not part of the algorithm.

Parameters in the first and in the third experiment:

$$B_1 = 1 \quad B_3 = 1 \\ B_2 = 1$$

$$\beta_{ki} = 360 \quad \text{for } i \neq k \\ \beta_{kk} = 30$$

Parameters second experiment:

$$B_1 = 0.8 \quad B_3 = 1 \\ B_2 = 1$$

References

- [1] Allport, A.: *Selection for action: Some behavioral and neurophysiological considerations of attention and action*. In: Perspectives on Perception and Action. Lawrence Erlbaum Associates: H. Heuer, A. F. Sanders, pp. 395-419, 1987.
- [2] Amari, S.; Arbib, M. A.: *Competition and Cooperation in Neural Networks*. Berlin: Springer Verlag, 1982.
- [3] Celenk, H.: *A color clustering technique for image segmentation*. Comp. Vision, Graphics and Image Processing, vol. 52 (1990), pp. 145-170.
- [4] Fritzke, B.: *A growing neural gas network learns topologies*. Advances in Neural Information Processing Systems, vol. 7 (1995).
- [5] Grossberg, S.: *Studies of mind and brain*. Dordrecht: D. Reidel, 1982.
- [6] Grossberg, S.; Mingolla, E.: *Neural dynamics of perceptual grouping: textures, boundaries, and emergent segmentations*. Percept Psychophys, vol. 38 (1985), pp. 141-171.
- [7] Hummel, R. A.; Zucker, S. W.: *On the foundations of relaxation labelling processes*. IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. PAMI-5 (1983), pp. 267-287.
- [8] Kienker, P. K.; Sejnowski, T. J.; Hinton, G. E.; Schumacher, L. E.: *Separating figure from ground with a parallel network*. Perception, vol. 15 (1986), pp. 197-216.
- [9] Kohonen, T.: *Assoziative Memory - A system theoretic approach*. Berlin: Springer Verlag, 1977.
- [10] Mosquera, A.; Cabello, D.; Carreira, M. J.; Penedo, M. G.: *Texture image segmentation using a modified hopfield network*. New Trends in Neural Computation, IWANN' 93, 1993, pp. 657-663.
- [11] Mozer, M. C.; Zemel, R. S.; Behrmann, M.; Williams, C. K. I.: *Learning to segment images using dynamic feature binding*. Neural Computation, vol. 4 (1992), pp. 650-665.
- [12] Pachowicz, W.: *Semi-autonomous evolution of object models for adaptive object recognition*. IEEE Transactions on Systems, Man, and Cybernetics, vol. 24 no. 8 (1994), pp. 1191-1206.
- [13] Samet, H.: *A tutorial on quadtree research*. In: Multiresolution image processing and analysis. Springer Series in Information Sciences. Vol. 12. Berlin: Springer: A. Rosenfeld, pp. 212-223, 1984.
- [14] Worth, A. J.; Lehar, S.; Kennedy, D. N.: *A recurrent cooperative/competitive field for segmentation of magnetic resonance brain images*. IEEE Transactions on Knowledge and Data Engineering, vol. 4 no. 2 (1992), pp. 156-161.