The dialectical architecture of visual intelligence where every activity is available as a tool for the next activity

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[Abstract]

The automatic implementation of decoders for a visual perception is achieved as follows. The action described by a production rule is realized by means of the decoder in which a pattern of connections corresponds to that of stimuli. According to "S. Karasawa, (Proc. of CCCT, Vol.5, pp.194-199, Austin, Texas, August, 2004)", each programmable controllable connection among inputs is realized by a floating gate avalanche injection MOS FET, where inverted signals are used at writing, and the detection of matching between inputs and connections is carried out by using the signal source in which low level signal is provided via comparatively smaller resistance than high level.

An example of dialectical operating system is the surveillance system in which a view area is controlled by the visual perception. The processes of segmentation on a view field are programmed according to the object of surveillance. Positions of things to be checked in detail must be listed through rough analyses. The area of secondary analyses is turned toward a selected thing and the calculation of function similar to zoom lens is carried out for the normalization of number on pixels. A decoder unifies results of analyses. An action of machine is triggered by a cognitive activity of top priority.

The surveillance system must interact with the outer world frequently. Each operation ends at its output. The causality makes possible to predict. Although original causalities of image are obtained heuristically, the checking list for a machine will be implemented via a human. Moreover, the visual intelligence is obtained without language use, but a linguistic expression is available as a symbol of integrated activities.

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