BIOLOGICALLY INSPIRED FEATURES IMAGE
BASED ON VISUAL CORTEX

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QH-2007-I/CQ, Electronics and Telecommunications Technology

Abstract:

Human brain is a complex organization and the most sophisticated in the nervous system. Today, there are many studies related to the activities of specific brain regions such as the brain areas that related to visual nervous system. The Visual nervous system is a topic which is being widely studied, especially in the field of image processing. In the field of image processing, the desire for understanding how people receive images and demonstrate them in brain areas that related to sight, etc…are being studied by researchers, and there are some concrete achievements.

Therefore, my graduation paper is carried out with the hope of studying the following

- Model of receiving images in human sight.
- Mathematical functions which perform similarly as to those in the human sight.
- Evaluation of the model for the specific image compression problem.

The thesis will provide us with better understanding about the structure of activities in a brain area that related to vision and image processing in it. That process is basically the one which reduces the amount of data (data reduction) but still retain the information that the image representation. In addition, it help us to learn a mathematical representation function that corresponds to the receiving space of the simple cells in visual cortex, and provide a model of image compression problem that based on the way human sight receive images, and evaluate the model.

Keywords: *visual cortex, 2D Gabor function, compression, image representation.*