Group 5-1

Mathematical model of neural network for the insect brain

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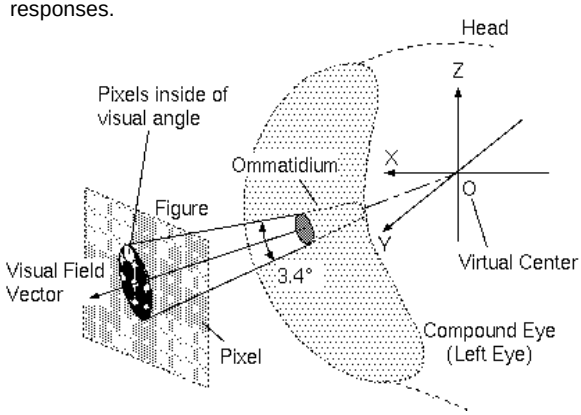
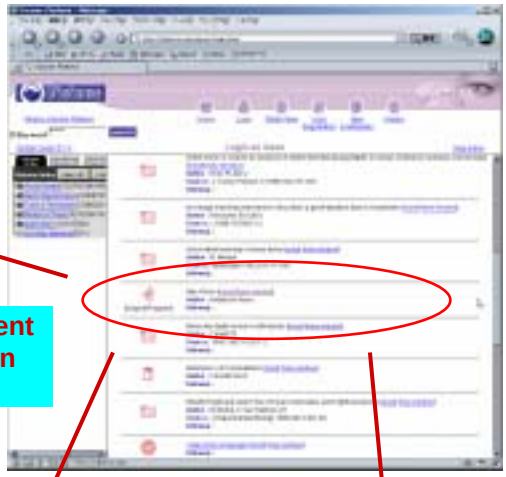
A reconstruction method of projection image on worker honeybees' compound eye

H Ikeno, Neurocomputing, Vol.52-54, 561-566, 2003.

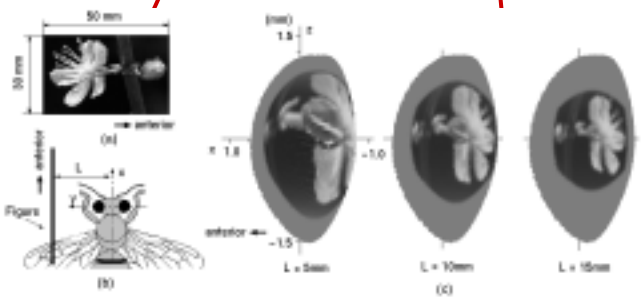
Visual perception by insect compound eyes have been interested in visual science fields for revealing neuronal principals of vision, and applying their small and simple structures to the artificial vision system. In order to investigate the animal behavior which related with sensory stimuli, it is important to take account into real input signals for nervous system. In the case of insect with compound eye, the projected scenery on compound eye is basic signal for visual information processing. This is coded by C program for reconstruction of projected image on honeybee compound eye. It can be estimated illuminance change of a single ommatidium surface. It would be applied to analysis of relevance between input images and retinal responses.



Calculation method of projection image



Submitted content with a simulation program



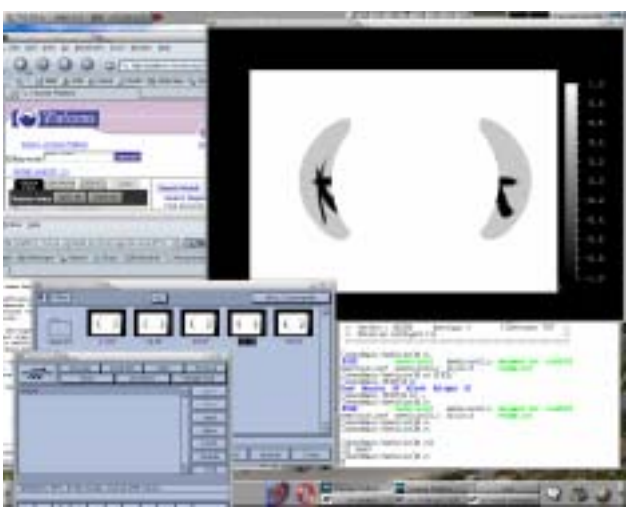
Projection image on compound eye

Model executable

Simulation program downloadable

Simulation on Visiome Simulation Server

Simulation on your PC



A simulation program can be compiled and executed with several compilers (gcc, ccc, icc) and scientific data plotting software DISLIN .(http://www.linmpi.mpg.de/dislin/) on the operating systems Unix, Linux, FreeBSD.

You can run the simulation program and check the results on Visiome Simulation Server linked from Visiome Platform through the Web browsers.