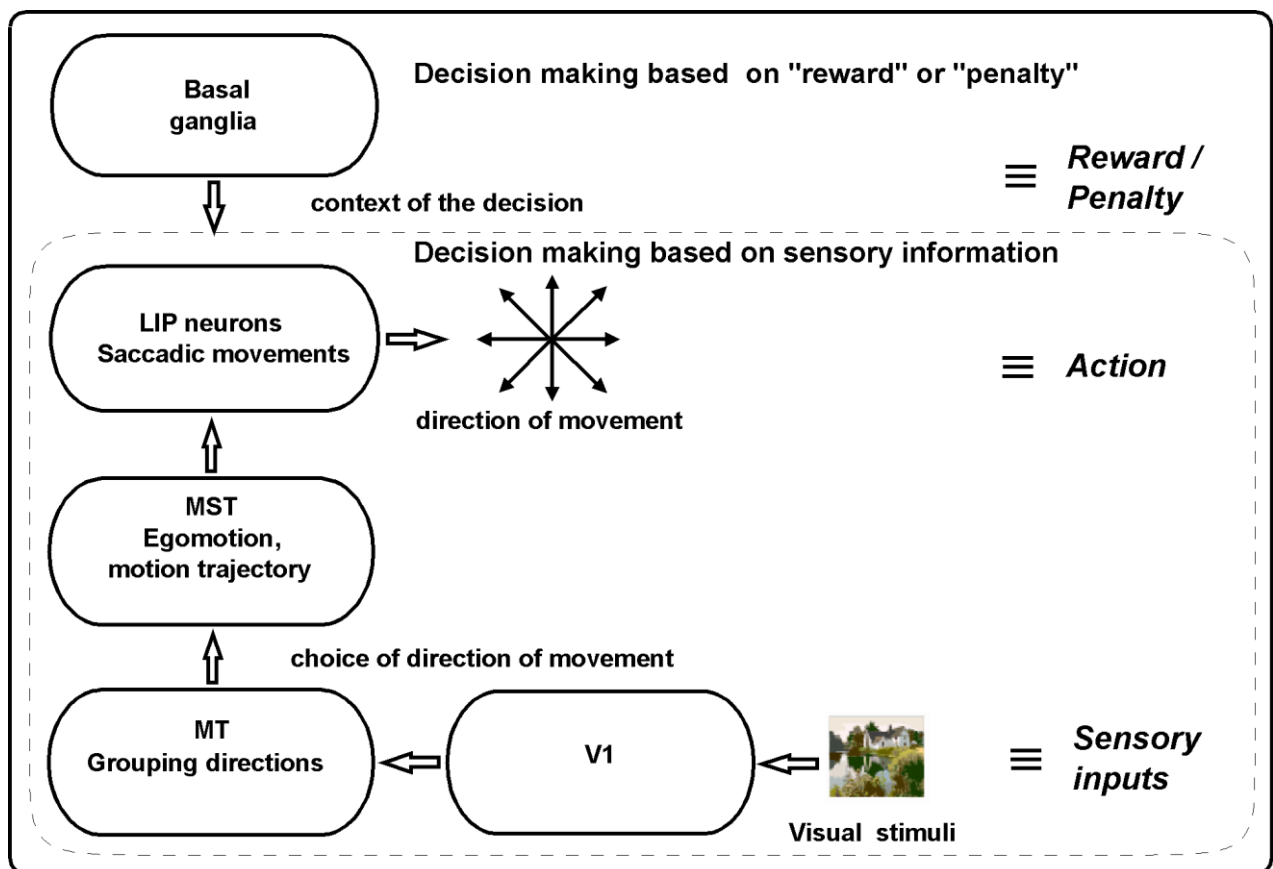# MODELLING OF VOLUNTARY SACCADIC EYE MOVEMENTS DURING DECISION MAKING

MAIN AIM

To create biologically plausible model of voluntary saccadic eye movements of humans during resolving of visual tasks by gathering of neural network models of preliminary processing of visual information for motion with models describing structures in the human brain responsible for reinforcement learning (RL), accounting for the age of humans in the model parameters.

FORESEEN MODEL STRUCTURE

TASKS

1.   Gathering of experimental data for saccadic movement of eyes of humans from different age groups during resolving of visual tasks related to processing of visual information for motion.

2.   Development of biologically plausible models using neural networks for:

-    Processing of visual motion information;

-    Reinforcement learning;

3.   Development of a model of decision process and learning in time based on belief functions and the theory of Plausible and Paradoxical Reasoning of Dezert-Smarandache.

4.   Simulation of the obtained models and comparison of the results with collected experimental data for voluntary saccadic eye movements of humans from different age groups obtained during decision of visual tasks aimed at determination of age-related changes of some of the model parameters.

EXPECTED RESULTS

A.   Development of a simulator of voluntary saccadic eye movements of humans with RL training during decision of tasks related to processing of information for motion based on parallel computer architecture.

B.   Development of methodology for assessment of human's reaction during processing of dynamic visual information with complex dynamic stimuli and humans' ability to change behavior during RL.