



THESIS ASSIGNMENT

Name and Surname: Valeriia Danina
Study programme: Applied Computer Science (Single degree study, master II. deg., full time form)
Field of Study: Computer Science
Type of Thesis: Diploma Thesis
Language of Thesis: English
Secondary language: Slovak

Title: An adaptive fuzzy inference in predator-prey pursuit game

Annotation: Fuzzy expert systems (FES) belong to powerful AI instruments for emulating the process of common/expert thinking, able to handle "soft" knowledge (uncertain, vague, imprecise, inconsistent, incomplete) in an efficient way. An interesting application of FES is simulation of multiple agents e.g. playing a predator-prey pursuit game. Each agent is equipped by its own base of heuristic fuzzy rules and performs reasonable multi-step inference of new "soft" facts, which ensures its adequate behaviour during a game. Such an agent's knowledge base can be advanced and refined in learning process using suitable AI-techniques.

Aim: The main aim is a design and development of a fuzzy expert system for multi-agent simulation of predator-prey pursuit game enabling implementation of suitable AI learning techniques.

Literature: SILER, W. - BUCKLEY, J. J. Fuzzy Expert Systems and Fuzzy Reasoning. Wiley. 2005.

LAW, M. A. - KELTON, M. D. Simulation Modeling and Analysis. McGraw-Hill Higher Education, 1999.

MILLINGTON, I. Artificial Intelligence for Games. Morgan Kaufmann, 2006.

Keywords: fuzzy logic, expert system, multi-agent system, simulation

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