CS 470 ARTIFICIAL INTELLIGENCE
Winter 2006, Instructor: Jeffrey Horn

NUMBER: **CS 470** (CRN# 12434, Lec. 01)

PREREQUISITES: CS 201 ***(note that the pre-req is normally CS222, but for W06 it will just be CS201!)***

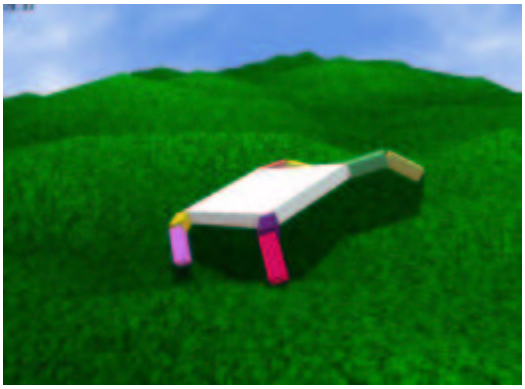
MEETING TIMES: TR 4:00 -5:40 pm NSF (To Be Announced) CREDIT HOURS: 4

DESCRIPTION: This course takes students beyond the traditionally rigid and brittle algorithms of computer science. Students learn techniques for making computers behave more intelligently and adaptively than typical programs. The course includes a survey of the broad and dynamic field of computer intelligence, from the established techniques for automated reasoning, knowledge representation, and machine learning, to the newer areas of stochastic, adaptive systems, such as neural networks, genetic algorithms, or intelligent agents. A few specific methodologies will be explored in depth, through implementation and application to real world problems.

The class will cover the topics listed above, recent advances in artificial intelligence, and any necessary background materials.

For Winter 2006, this offering will have a special emphasis on "situated intelligence", by developing intelligent behavior for agents (e.g., enemies, NPCs) in 3D simulated worlds via use of a 3D game engine, and by programming of robots, both real and simulated. (We will program existing robots, rather than designing and building new platforms, which is what we do in CS 370.)

Here are some images of 3D simulators and actual robots that we will be using in the course:



ABOVE LEFT: Breve, open source simulator for evolutionary computation and artificial life

ABOVE RIGHT: 3D Game Studio for evolving autonomous behavior in an interactive, immersive 3D game engine.

(ABOVE, LEFT TO RIGHT: Digital Braitenberg Vehicle, Laptop Bob (Java RMI 'bot), AmigoBot, hexapod)

Please contact Jeffrey Horn (jhorn@nmu.edu, 227-1607) with questions.

(this announcement is on the web at http://cs.nmu.edu/~jeffhorn/Classes/CS470/Winter2006/announce.html) Course home page: http://cs.nmu.edu/~jeffhorn/Classes/CS470/Winter2006 Detailed course description: http://math.nmu.edu/courses/cs370.html)