

# ST504 Advanced Topics in Neurobotics, Behavioral Robotics, and Exoskeletons

Fall 2008, Instructor: Dr. Milos Manic

<http://www.husky.if.uidaho.edu/nbots08/>

## *Class policy*

### Course outline:

**Course title: CS504 Advanced Topics in Neurobotics, Behavioral Robotics, and Exoskeletons (3 cr)**

**Topics:** This is an advanced topics course in Biologically Inspired Neurobotics and Behavioral Robotics (BINBR). The focus is on the development of relevant tools, methods, and design of such systems. The course will develop a theoretical framework for major issues in BINBR.

The principles, design, and practice of behavior-based autonomous robotic architectures through a survey of these systems will be given. Relevant biological and psychological models of behavior, knowledge building and learning in autonomous robots, reactive versus cognitive, mind and machine, modular perception, robot colonies, and future trends in robot intelligence will be covered. Programming intellect, such as reinforcement learning and self-organizing algorithms, and mathematical models of mammalian neurons will be covered. Prereq: perm. Graduate standing or instructor permission. This course is offered for the first time at the University of Idaho.

**To be offered:** Fall 2008 in Idaho Falls (live) and via Blackboard (outside of Idaho Falls).

**Credits:** 3 credit course

### Schedule:

Tuesday and Thursday, 12:00pm - 01:15pm mdt

### Office hours:

Tuesday and Thursday, 11:00am - 12:00pm mdt (please make an appointment)

### Location:

Live in Idaho Falls (CHE 301), and via Blackboard outside.

### Instructor:

Milos Manic, Ph.D.

University of Idaho

UIIF College of Engineering at IF, UIIF CS Dept

1776 Science Center Drive, TAB Ste. 303,

Idaho Falls, ID 83402;

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ph. direct: 208.282.7845; fax: 208.282.7950;

email: [misko@uidaho.edu](mailto:misko@uidaho.edu)

url: <http://www.cs.uidaho.edu/Faculty/Manic.html>

url: <http://husky.if.uidaho.edu>

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### Class web page:

<http://husky.if.uidaho.edu/nbots08/>

Blackboard url: please refer to course url.

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### Tentative Semester Schedule

Aug. 25	Fall 2008 semester begins
Oct. 07	Exam #1
Nov. 24-28	Fall recess (Thanksgiving, UI Closed)
Dec. 08-12	No examination week
Dec. 10-14	Final Exam (final examinations week)
Dec. 20	Close of fall semester
Dec. 22	Fall semester grades due 12pm (pdt)

### Paper:

Paper first draft due: Sep. 18, 2008

Paper second draft due: Oct. 16, 2008

Paper third submission: Nov. 06, 2008

Paper final version submission: Dec. 04, 2008

Paper presentation: week of Dec. 09, 2008

For your reference, UI Academic Calendar is given at:

<http://www.registrar.uidaho.edu/registration/planning-calendar.html>

### Grading system:

Two exams, team project and report, in class presentations, and homework assignments.

### Grading policy & tentative grades::

Homework	35%
Exams #1, #2	30%
Paper	35%

A (90 - 100) %

B (80 - 89) %

C (70 - 79) %

D (50 - 69) %

F (0 - 49)

### Homework assignments:

The homework will emphasize the important features of the text and lecture materials, such as: design, simulation and evaluation of specially assigned concepts and techniques.

**Homework will be picked up and graded.**

### Paper

Required paper can have more of a research (theoretical) or more of a project (applicative) flavor. The purpose of the project paper is to demonstrate the ability to apply learned algorithms on real world problems. Research paper is not required but is encouraged.

### Exams

The exams will be similar to the homework problems. All exams must be taken.

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**Plagiarism:**

Code reuse is encouraged - after all, there is no point in inventing the wheel :). However, if you reuse code, do not forget to properly include reference (& url, if applicable). *If you claim that code is yours and shows up it is not, submitted assignment will be considered as plagiarism, and will be graded with zero points.* Some examples are made or modified by course instructors and officially available on some University of Idaho pages. Such examples are copyrighted and not available for further use.

**Computer misuse:**

Computer misuse is a felony in the State of Idaho. We will cooperate fully with the FBI, campus IT staff, and local law enforcement if the need arises.

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