Projects in Machine Learning

Syllabus

CS494/594, Spring 2006

Class web page: http://www.cs.utk.edu/~parker/Courses/CS594-spring06

Instructor: Prof. Lynne E. Parker
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Office Hours: Tuesday/Thursday 3:45-4:45 (or send email for appointment at another time)

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Time and Place: Tuesday/Thursday, 5:05-6:20 PM, Claxton 206

Course Description:
Machine Learning is the study of how to build computer systems that learn from experience. This CS494/594 course on Projects in Machine Learning will explain how to build systems that learn and adapt using real-world applications (such as robotics and brain wave signal understanding). Some of the topics to be covered include concept learning, neural networks, genetic algorithms, reinforcement learning, instance-based learning, and so forth. The course will be project-oriented, with emphasis placed on writing software implementations of learning algorithms applied to real-world problems, along with short reports describing your results. No exams will be given.

Required Textbook:

Prerequisites: Familiarity with basic concepts of computer science (algorithms, data structures, and complexity), mathematical maturity commensurate with CS380 or equivalent, and ability to program algorithms in a language of your choice.

Evaluation:
Grading will be based 100% on project grades. Some projects will count more than others. The value of each project will be announced.

Final grades will be determined by overall average as follows:

A:  90 – 100  
B+: 85 – 89.9  
B:  80 – 84.9  
C+: 75 – 79.9  
C:  70 – 74.9  
D:  60 – 69.9  
F:  0 – 59.9

Decisions on borderline grades will be based upon exceptional class attendance and participation.

Students taking the class for undergraduate credit will be assigned the same projects as those taking the class for graduate credit, except when announced otherwise. However, the quality of the work expected is higher for graduate students than for undergraduates, and thus will be graded more strictly. More details of expectations will be provided for each project (as it varies by project).
Class Policies:

- **Class attendance:** Class attendance will be taken. Decisions on borderline grades will be based upon exceptional class attendance and participation, as deemed merited by the course instructor. You are expected to keep up with all course material and announcements covered in class. If you miss class, you must obtain the covered material from a willing classmate. Neither the instructor nor the TAs will be available (during office hours or other times) to repeat material covered in class.

- **Project assignments:** Project assignments will be handed out in class and posted on the course web site, along with the due dates. All projects will be introduced and discussed during class time. Projects will involve a combination of programming and/or writing up your results (in short report form). You may use any programming language you like to program your own projects, as long as the compiler is available on our department Linux machines, and as long as your code runs on our Linux machines. As part of the project materials you turn in, you will be required to submit instructions for how to run your code, along with all files needed to successfully run your code.

- **Collaboration Policy:** Discussing and exchanging ideas is encouraged. You may help each other with your strategy for how to solve the projects. You are expected to note significant collaborations by giving the name of your student collaborators on the project material you turn in. However, except if specifically allowed by the instructor, copying from any outside sources (e.g., fellow students, Internet, etc.) on any material to be graded is not permitted, and will be considered cheating. Cheating will be dealt with harshly, and may result in failure of the assignment/exam and/or failure of the class. Each student is responsible for securing his or her work from copying. Each student is expected to abide by UT’s policies on Academic Conduct and the Honor Statement. Refer to the University of Tennessee Undergraduate Catalog (2005-2006), pages 38-39, and the HillTopics Student Handbook (2004-2005), pages 11-13, for more details.

- **Due dates and Late Projects:** One (1) project may be turned in up to one week late and still receive full credit. All projects after this will immediately be given a grade of zero, with no exceptions. All projects are due at 23:59:59 on the assigned due date. All projects turned in after this time will be considered late.

- **Exams:** There will be no exams or quizzes 😊.

- **Grading corrections:** Bring any project grading correction requests to the instructor within 1 week of receiving the grade, or before the end of the semester, whichever comes first. After that, your grade will not be adjusted. If you find any mistake in grading, please let the instructor know. Your grade will not be lowered.

- **Announcement responsibilities:** Important announcements, schedule revisions, etc., will be posted to the class email list. You are responsible for information distributed to this email list.

- **Schedule and readings:** The schedule for each class will be posted on the class web site, along with relevant readings for each topic. You are expected to keep up with the readings as we go, as they will help provide the foundation for completing your projects.