Course Missive

Spring 2019

Time and Location: MWF 2:00 - 2:50 PM, CIT 368

Course Staff

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<tr>
<th>What</th>
<th>Who</th>
<th>Where</th>
<th>When</th>
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<tbody>
<tr>
<td>Professor</td>
<td>Eugene Charniak (ec)</td>
<td>CIT 419</td>
<td>By appointment</td>
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<tr>
<td>Head TA</td>
<td>Andrew Kim (ykim81)</td>
<td>TBA</td>
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<td>Undergraduate TAs</td>
<td>Philip Xu (jx24)</td>
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<td>Valeria Tiourina (vtiourin)</td>
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<td>Zachary Horvitz (zhorvitz)</td>
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Introduction

Welcome to CS146! Have you ever wondered how a computer program can complete such amazing tasks as:

- translating English texts into exotic foreign tongues,
- identifying the subject, verb, and object of a sentence,
- understanding the semantics of text and converting it to actions, and
- generating new sentences from scratch,

all with little or no human instruction? Do you want to take the first step on the road to becoming Professor Eugene Charniak? If so, this is the course for you!

This course satisfies the Artificial Intelligence / Machine Learning pathway requirement for the Sc.B. or A.B. track in Computer Science.

Prerequisites

Students should have taken CSCI 1470 (Deep Learning), or have an equivalent background. While not formal prerequisites, students should also have a basic programming background (equivalent to CS15/16, CS17/18, or CS19).
Assignments

All assignments will be programming projects, which will involve replicating the experiment results in contemporary research papers. The assignments will be broken up into several checkpoints, either formally (having separate deadlines for different parts of the assignment), or informally (discussing preliminary results with the professor during class.)

Unlike assignments in many other courses, the nature of the projects in this course will be more exploratory and open-ended. While students are required to follow the experiment in the paper to replicate its results, most of the papers do not list exact implementation details, meaning students will be given freedom in the approach of the implementation. Extra credit may be given if students make a novel addition to improve the results, or implement features beyond the part of the paper that was assigned.

In some cases, achieving results comparable to the paper may be a difficult task: given that implementation details are often ambiguous, it is expected that students will try out different implementations that may not end up working out. Each assignment will thus have a written component, where students will document what they have tried and haven’t tried, the experiment results of the various implementations they have attempted, hypotheses on why the implementations work or doesn’t work, and what other approaches they envision doing if more time or resources were allotted. In essence, even if you do not achieve the results in the paper, as long as it shows that you have put in significant effort and thought into the assignment (as evidenced in the written portion), you will receive substantial partial credit.

The grades of the programming assignments (excluding the warmup assignment) together will make up the final grade. However, since the difficulty of the projects may vary, the weightings of the assignments will be adjusted accordingly (for instance, difficult projects in which a significant amounts of students struggle to achieve good results may have a lower weighting.)

**Note, however, that you must complete all of the programming projects in order to receive credit for this course.**

Each of the programming projects is due by midnight on the date listed on the handout. You will have seven (7) free late days to use towards all but the last project, and each project may only have up to three (3) late days applied. After your late days are expended for the project, you will lose 10% of your project grade for each extra day your handin is delayed. **Projects handed in after 11:59 PM on Friday, May 10th will not be accepted.**

Additionally, if you want a TA to regrade an assignment, you need to ask that TA within two weeks of receiving your assignment back. The exception to this is the last project, regrades must be asked within a week.
Coding

Since this is not a software engineering course, we will not be enforcing stringent style guidelines, but you should write so that someone unfamiliar with your code will be able to understand what your program is doing (add plenty of comments, break up code into smaller functions, etc.) If you turn in a partially-functional assignment and we are unable to tell what you were trying to do, we will have a much more difficult time giving partial credit.

As that translates to an official policy, so long as your code produces the expected output(s) and adheres to any specific project restrictions (runtime, etc.) then you will not lose points for poor design or coding practices. However, as this is not a software design course, it is not the responsibility of the TAs to attempt to understand the intentions underlying confusing code.

You will be asked to write the programming assignments in Python 3.5+, but you are free to use either the Keras or Pytorch framework in addition to the Tensorflow library. Keep in mind, however, that different TAs have different experiences with the frameworks, and may have more expertise in one over the other.

To standardize the grading process, we will provide you with template shell scripts which will invoke your program on arbitrary input files. We will be using this shell script to run your program - failure in filling in these scripts will cause you to lose 15% of your grade on that project, even if you provide full instructions for running your code.

Extensions / Incompletes

Requests for extensions on assignments or incompletes for the course should be directed to Professor Charniak. However, please note that he will be very reluctant to grant an extension or incomplete without a deans note or other documentation indicating an extenuating circumstance.

Collaboration Policy

We are trying a different approach for the collaboration policy this semester. Based on how successful this policy is on student’s learning, we may keep the policy as-is, or make changes during the semester (in which case the new policy will be announced to the class.)

In general, we strongly encourage discussion and learning from your peers. However, ultimately, you must be able to produce original work, and the work that you submit must be your own.

- Reflecting the exploratory nature of the assignments, discussion of the readings is permitted and highly encouraged.
• You are allowed to discuss implementation ideas, such as the neural network design, network hyperparameters, or methods of preprocessing data. Our TA hours will be designed to facilitate such an environment. However, we ask that in the written portion of the assignment, you include the names of those you have received significant assistance from. This is akin to acknowledging a reference in a research paper. Furthermore, while sharing of ideas is encouraged, make sure that you are at least doing some original work of your own, and not solely relying on the ideas of others.

• While we encourage sharing of ideas, the actual code, writeup and handin must be of your own work. Do not upload your solutions online, including on public Github repositories. You cannot collaborate on the actual code details with other people, nor should you refer to online codebases. We will be running MOSS on the assignments to enforce this rule.

• To save time in debugging, we will allow students to help debug each other’s code. However, again, please list the people that you received debugging help in the written part. Also, as stated above, we will be using MOSS, so please take caution. In particular, have your laptop or code window closed while helping debug someone else’s code. Do not take away any notes while debugging someone else’s code. After debugging help, take a break before taking a look at your own code.

Academic dishonesty will not be tolerated. This includes cheating, lying about course matters, plagiarism, or helping others commit a violation. Plagiarism includes using the work of others without a citation. Students are reminded of the obligations and expectations associated with the Brown Academic and Student Conduct Codes. This will be enforced.

Diversity & Inclusion

Our intent is that this course provides a welcoming environment for all students who satisfy the prerequisites. Our TAs have undergone training in diversity and inclusion, and all members of the CS community, including faculty and staff, are expected to treat one another in a professional manner. If you feel you have not been treated in a professional manner by any of the course staff, please contact either the instructor, Ugur Cetintemel (Dept. Chair), Tom Doepner (Vice Chair) or Laura Dobler (diversity & inclusion staff member). We will take all complaints about unprofessional behavior seriously. Prof. Krishnamurthi has good notes on this area. To access student support services and resources, and to learn more about diversity and inclusion in CS, please visit this webpage.

Brown welcomes students from all around the country and the world, and their unique perspectives enrich our learning community. To empower students whose first language is not English, an array of support is available on campus, including language and culture workshops and individual appointments. For more information, contact the English Language Learning Specialists at ellwriting@brown.edu.
Accommodations

Brown University is committed to full inclusion of all students. Please inform the professor if you have a disability or other condition that might require accommodations or modification of any of these course procedures. You may contact through email, come to office hours, or speak individually after class, and your confidentiality will be respected. We will do whatever we can to support accommodations recommended by SEAS. For more information contact Student and Employee Accessibility Services (SEAS) at 401-863-9588 or SEAS@brown.edu. Students in need of short-term academic advice or support can contact one of the deans in the Dean of the College office.

Mental Health

Being a student can be very stressful. If you feel you are under too much pressure or there are psychological issues that are keeping you from performing well at Brown, we encourage you to contact Browns Counseling and Psychological Services CAPS. They provide confidential counseling and can provide notes supporting extensions on assignments for health reasons.