
Course Syllabus: CSC 591/791-007 ECE 591-002 CSC 591-607 (DE)
ECE 591-607 (DE) Deep Learning Beyond Accuracy
Fall 2024

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Computer Science

COURSE CATALOGUE DESCRIPTION

In this course, students read and discuss research papers about deep neural networks with a focus on not just accuracy but also resource consideration e.g., FLOPs, parameter counts, time, memory, etc. With that interest, papers about techniques to design an efficient neural network architecture, such as structured/unstructured pruning, knowledge distillation, and quantization, will be read. On top of that, other dimensional metrics of machine learning, such as trustworthiness/robustness, fairness, or privacy, will also be explored. As a seminar course, this course is dedicated to paper reading, presentation, and discussion. Students will conduct a term project and take no exam. Students are expected to have implementation experiences on (convolutional deep) neural networks.

- Read/present/discuss ideas from research papers
- Conduct a term project and submit a term paper.
- Take no exams.

CREDITS

3 credits

PREREQUISITE

Implementation experiences with (deep) neural networks.

INSTRUCTORS INFORMATION

INSTRUCTOR

- Name: Jung-Eun Kim

- Email: jung-eun.kim@ncsu.edu
- Webpage: <https://jungeunkim.wordpress.ncsu.edu/>
- Office hours: by appointment

Note: The instructor reserves the right to change any content or aspect of the syllabus if need be to meet the course objectives.

COURSE INFORMATION

- Days & Time: Mon Wed 11:45 am - 1:00 pm
- Location: Engineering Building III Room 2213
- In-person attendance is required.

EXAMS

No exams

PAPER READING AND UPLOADING SUMMARY AND QUESTIONS

- We will usually read 2 papers every 3 classes (or 1 paper every 1 class depending on the enrollment). You upload 1 discussion point.
- A presenter or a team will present a paper, and all discuss the paper.

PROJECT

- You do one project alone or team up (up to 3 people per team.)
- You present your abstract (topic) in the middle and the results of your project at the end.

GRADING COMPONENTS

Component	Weight
Class participation	50%
Presentation	20%
Course project	30%

OTHER COURSE POLICIES

- I presume you would check your NCSU email at least once a day for any class updates/announcements.
- No emails may be answered during weekends. Hence do not expect a response if you plan to email over the weekend.

THE INSTRUCTOR PRESUMES THE STUDENTS WILL HAVE READ THE FOLLOWING POLICIES AND ARE AWARE OF THEM.

ACADEMIC INTEGRITY - VERY IMPORTANT!

Code of student conduct & Academic honesty:

<https://policies.ncsu.edu/policy/pol-11-35-01/>

Academic integrity:

<https://studentconduct.dasa.ncsu.edu/>

ATTENDANCE POLICY

We basically follow the rules described in the following:

<https://policies.ncsu.edu/regulation/reg-02-20-03-attendance-regulations/>

ACCOMMODATIONS FOR DISABILITIES

<https://policies.ncsu.edu/regulation/reg-02-20-01/>

EQUAL OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION POLICY

<https://policies.ncsu.edu/policy/pol-04-25-05/>

DIGITAL COURSE COMPONENTS

Students may be required to disclose personally identifiable information to other students in the course, via digital tools, such as email or web-postings, where relevant to the course. Examples include discussions of class topics, and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course.