CS 459 – AI & Machine Learning Projects

Fall 202x: <days> <time> <location>

William "Amos" Confer
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Office Hours

<days> <times>

Summary

Dive into the exciting world of artificial intelligence and machine learning through active project development. In this practicum, student teams will brainstorm, design, and implement several AI/ML projects inspired by their backgrounds, interests, and changing technologies. The teams will showcase several projects in presentations. For each project, students are additionally expected to critically reflect on the broader societal impact and ethical considerations that could arise from the deployment of the project-specific technologies.

Prerequisite

CS 395 Machine Learning Concepts

Outcomes

By the conclusion of this course, students are expected to:

- Identify, design and develop applied AI/ML projects as part of small teams
- Apply fundamental AI/ML techniques/technology to address specific project goals
- Present project decisions and activities verbally and in written form
- Analyze and articulate potential broader impacts of the projects and technology
- Demonstrate an understanding of AI/ML project lifecycles and trends in the field

Text (none required)

Free or open-source references may be identified and shared throughout the semester as they may apply to the identified project domains, chosen AI/ML technologies, and discussions of non-technical concerns.

Tentative Schedule

- Week 1-2: Kick-off
    - Build pool of project ideas
    - Identify potential AI/ML technologies
    - Discuss AI/ML lifecycles appropriate to the projects

- o Determine possible data sources or collection mechanisms
  - ▪ Are there social, ethical, or bias issues associated with these sources
- Week 3-6
  - o Establish Project 1 teams
  - o Work on Project 1
  - o Project technology and social issues report
  - o Project 1 presentations
- Week 7 (…now that we've had some failures)
  - o Post-mortem of Project 1
  - o Revise project idea pool
  - o Reflect on technical lessons learned and AI/ML tools
  - o Re-evaluate data sources and collection
- Week 8-11
  - o Establish Project 2 teams
  - o Work on Project 2
  - o Project technology and social issues report
  - o Project 2 presentations
- Week 12-15
  - o Establish Project 3 teams
  - o Work on Project 3
  - o Project technology and social issues report
  - o Project 3 presentations

Team Grades

Many of the graded components of this course are intended to be graded at the team level. This means that each team member will hopefully receive the same grade for each such element. However, if a student does not perform at the team level for a given element, that student should NOT expect the same grade as the other team members. This includes both students who choose to participate to a lesser degree and those who choose to be "team hero" or take over.

Grades

- Projects make up the majority of the grade (84%)
  - o 28% per project
    - ▪ 5% team – Quality and adherence to course, process, and team standards
    - ▪ 6% individual – Oral presentation
    - ▪ 6% team – Demonstration of working product consistent with project intent and time restrictions

- 6% team – Technology and social issues report
- 5% team/individual – General process, status discussions
- Kick-off participation and assignments (6%)
- Project 1 Post-mortem (10%)

Final letter grades will be distributed on a 10% scale; i.e.:

A-, A, A+ = [90, 93⅓, 96⅔, 100+]%
B-, B, B+ = [80, 83⅓, 86⅔, 90)%
C-, C, C+ = [70, 73⅓, 76⅔, 80)%
D, D+ = [60, 66⅔, 70)%
F = [0, 60)%

Attendance

Class attendance is mandatory. There is no direct grade component dedicated to it; however, failing to attend class with any regularity will affect your grade negatively and severely.

Academic Conduct

Students must comply with the Code of Academic Conduct as defined in the Student Handbook. I will not hesitate to report and sanction incidents I believe to be academic misconduct.

Use of AI/ML in Projects:

This course encourages the ethical and transparent use of AI and machine learning tools as part of your project development. When incorporating pre-existing AI/ML models, libraries, datasets, or generative AI outputs, you must clearly and explicitly cite their origin and describe how they were utilized in your work. Failure to do so will be considered plagiarism. The primary goal of this course is to develop your understanding and skills in AI/ML; therefore, the core design, implementation, and analysis of your projects should reflect your team's learning and effort. Using AI/ML tools to avoid engaging with these fundamental aspects of the course is prohibited. The use of generative AI or other tools to create substantial portions of your projects, presentations, or reports without significant intellectual contribution is considered a violation of academic integrity. You are expected to understand and be able to explain all aspects of your project. When in doubt, discuss your plans to use AI/ML with the instructor.

Cancellation of Classes Due to Inclement Weather or Other Emergency:

SUNY Poly has a 24-hour hotline to inform students, faculty and staff when severe winter weather prompts the cancellation of all classes. On-campus, you can call the "Snowline" by dialing ext. 7669 ("SNOW"). Off-campus, Snowline can be reached by calling 315-792-7385. Snowline cards are available at various locations on campus.

In the event of severe weather, Snowline will announce only the cancellation of ALL classes. The cancellation of all classes will also be posted online, at sunypoly.edu, and will be broadcast on radio and television stations in the Utica-Rome, Syracuse, and Albany areas.

I will, whenever possible, notify the class through a Blackboard announcement (which will show up on our Blackboard course shell and in your email) as early as I can prior to any canceled class meeting that was not due to administrative/weather cancellation (eg, I'm out sick).

Items from the Office of the Provost

Accommodations for Students with Accessibility Needs

Your access in this course is important to me. In compliance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973, SUNY Polytechnic Institute is committed to ensuring comprehensive educational access and accommodations for all registered students seeking access to meet course requirements and fully participate in programs and activities. Students with documented disabilities, temporary, or medical conditions are encouraged to request services by contacting Student Accessibility Services (SAS) or filling out the Request for Accommodations form. Please note, requesting accommodations is only the first step. You must provide documentation to SAS and meet with staff before receiving accommodations. Please do this as early as possible 1) because accommodations are never retroactive and 2) so that we have adequate time to arrange your approved academic accommodation/s. Once SAS creates your accommodation plan, it is your responsibility to provide me a copy of the accommodation plan.

If you experience any access barriers in this course, such as with printed content, graphics, online materials, etc., reach out to me or Accessibility Services right away. For information related to these services or to schedule an appointment, please contact the SAS using the information provided below.

Office of Student Accessibility Services
SAS@sunypoly.edu
(315) 792-7170
Peter J. Cayan Library, L112

Pregnancy Statement:

SUNY Poly is committed to fostering an inclusive and supportive environment for all students, including those who are pregnant or experience pregnancy-related conditions. In accordance with relevant federal and state laws, including Title IX of the Education Amendments of 1972, students who are pregnant, have recently given birth, or are dealing with pregnancy-related conditions are entitled to equal access to educational opportunities.

If you are pregnant or experience a pregnancy-related condition, please reach out to me as soon as possible to discuss any accommodations you may need to support your participation in the course. Accommodations may include, but are not limited to, adjustments to class attendance policies, extended deadlines, or arrangements for makeup exams.

The university ensures that pregnant students will not face discrimination or be excluded from any educational programs or activities. Any concerns related to pregnancy and academic participation will be addressed with respect and confidentiality.

If you have questions or would like to request accommodations outside of what is being offered in class please contact the Title IX Coordinator, Kathie Artigiani, at artigik@sunypoly.edu.