Details of the project:

1. You will need to find a research paper on deep learning.
    - It should be published in one of the following conferences: NeurIPS, ICML, ICLR, AISTATS.
    - Also, it should be published during the last three years (2023-2025).
2. The paper should include an algorithm that you can implement (or has open-source code available that you can execute; be careful about the hardware requirement when choosing the paper) and of real interest to you (you should be really excited about it).
3. You need to study the methodology in the paper, including any theoretical guarantees.
4. You need to implement the algorithm on a dataset or application that is relevant and not considered in the paper.
5. You need to report your findings and discuss the performance and any unexpected outcomes.
6. (bonus) You will get bonus points if you extend or improve the methodology.

Rubrics: The proposal presentation (100pt)

Each group should prepare a proposal **presentation** (~5 minutes), to be done during the fourth lecture (Week 2). The proposal should convince the audience that you've found a good paper and that you have a plan for studying and implementing the methodology described in the paper. You could follow the following guideline:

- Who
    - Who are you? Introduce yourselves and any background/motivation.
- What
    - What is the problem addressed in the paper?
- Why
    - Why is the problem significant?
    - Is there some previous work on this problem? What are their limitations?
- How
    - What approach (briefly) is possible and what will be the main contribution and novelty?
- You
    - What will you learn by doing this project?

Rubrics: The final presentation (100pt)

- **Content (20pt)**: The presentation is about an interesting topic and relevant to deep learning. You can clearly show how the topic fit modern machine learning.
- **Correctness (20pt)**: You have a good understanding of the principles behind the topic.
- **Conveyance (20pt)**: You can clearly explain the "what/why/how" of topic with good illustration (e.g. figures/tables/equations) within the given time.
- **Communication (20pt)**: You can handle questions during your presentation. You can adequately respond to requests from the audience. Your group participate in other groups' Q&A.
- **Collaboration (20pt)**: Everyone in your group contributes and understands what other members do.

Rubrics: The final report (100pt)

- Introduction (20 pt)
- Related works (20 pt)
- Explanation and quality of approach (20 pt)
- Explanation and quality of experiments/theoretical arguments and results (20 pt)
- Novel datasets / applications (20 pt)
- Improvement of the methodology (bonus 20 pt)