

51.504 Machine Learning 2025

Project Outline

For this project, in your groups you will be looking at machine learning or artificial intelligence applications in your respective areas of interest. For the Masters students, it will be in the area of your Masters programme and for the PhD students, in your area of research. The project can be divided into four main parts:

- i) Identifying the data available.
- ii) Identifying the purpose or application of the machine learning algorithm(s) used.
- iii) Identifying the machine learning algorithm(s) used.
- iv) Discussing the implications, advantages and disadvantages of applying ML in these areas. You can discuss existing machine learning techniques and applications, people's receptions of these methodologies and in the best case, identify areas where these ML techniques have not been applied before.

Group size: 4-5

You can also make a group of 1 to 3, but I do not recommend it. In past years, there is generally less time to present the contents of the project if the group is too small. Also, please fill up this online form for those who want to be randomly placed in a group, and those groups who want maybe one or two extra members. If you have problems accessing the links, let me know.

Form: <https://forms.gle/tUTLJwpwgc84sSd37>

It is not compulsory but would be useful if some of these algorithms are applied to a small data set, you can choose to present these analytical results or present a survey of (iv) in greater detail.

The project proposal will be due on the date below and it should contain:

- 1) A short description of the area that your group wants to apply the machine learning algorithm to.
- 2) The people in your group.

Project proposal submission date: **11/11/2025**

For the project presentation, you will most probably be presenting over Zoom. Please make sure to turn your video on. Also please divide the presentation so that every member gets about 2-3 minutes to share. Due to time constraints, each group is limited to ten minutes, and around a min of Q&A after.

Project presentation date: **02/12/2025**