ETH zürich

Advanced Machine Learning (FS2021): Introduction to practical assignments

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Link to website:

https://aml.ise.inf.ethz.ch/

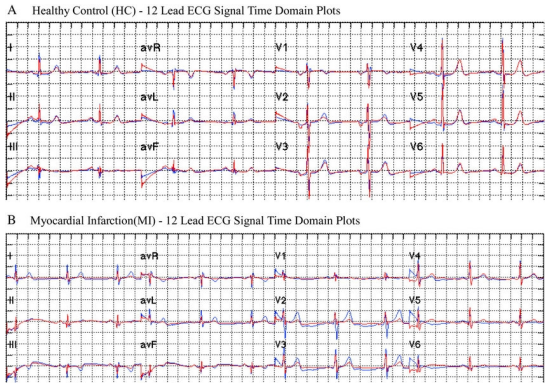
(Only accessible within ETH network)

Task 0: Dummy task, excluded from grading

Task 1 - 3: Graded, based on medical data

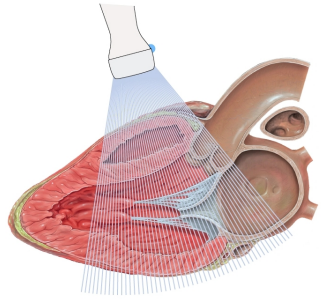
- Task 1: Predicting age from brain MRI features

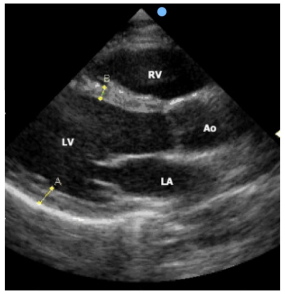
- Task 2: ECG classification



- Task 3: Ultrasound transducer position estimation

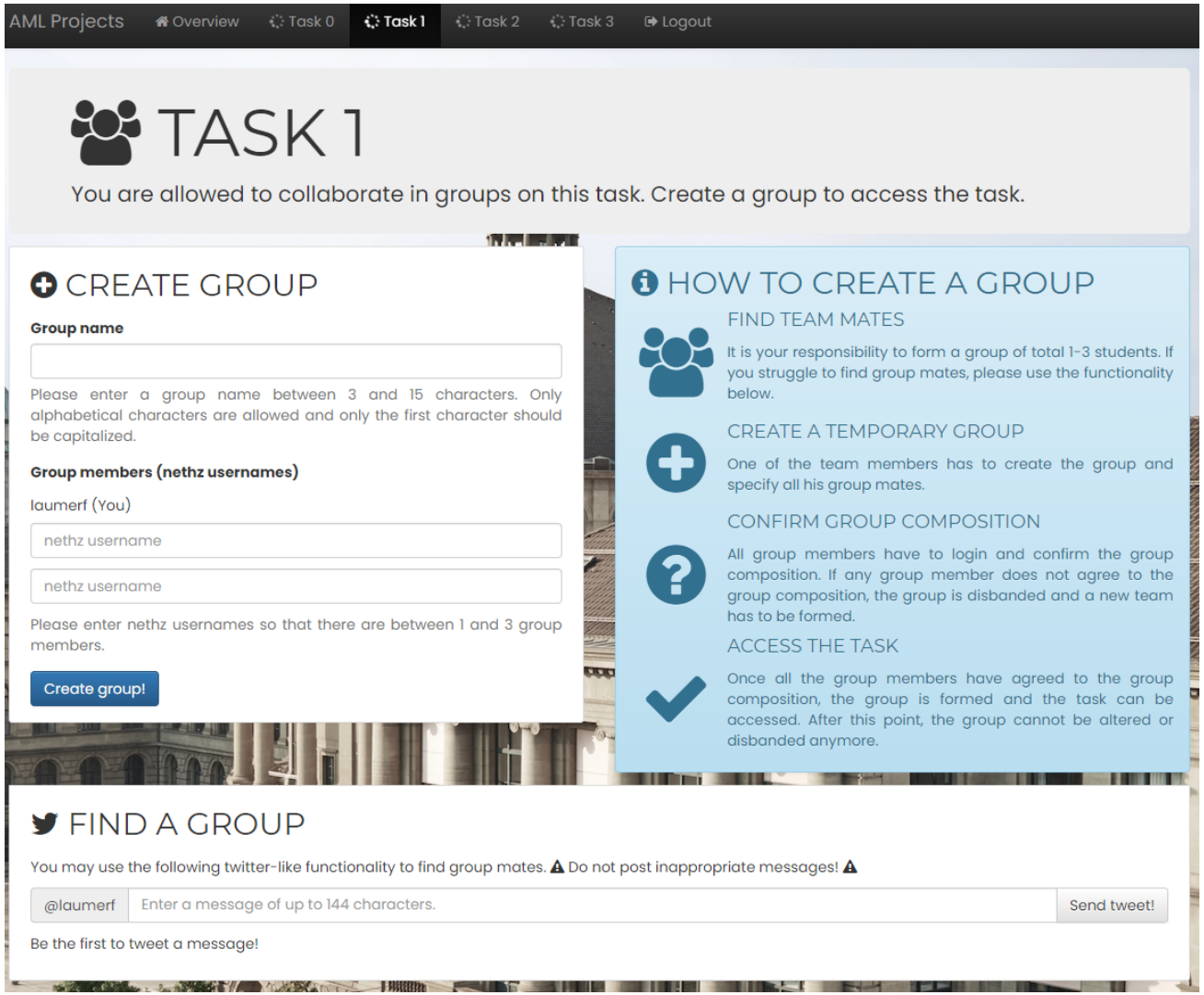
2D (two-dimensional) ultrasound



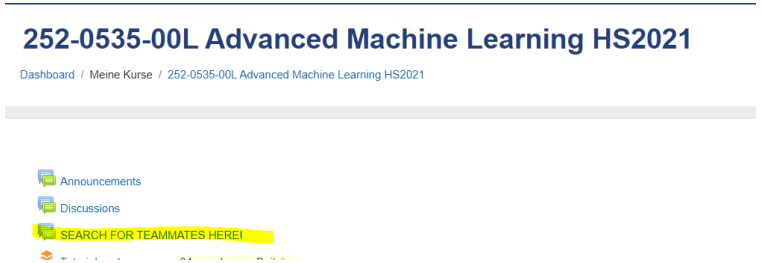


Project rules

Group building



- Use Moodle to find teammates



- Groups need to be formed for each task

Task procedure for tasks 1, 2 and 3

1. Task opens
   - Create groups
   - Read task description and download data files

2. Solve task

3. Submit solutions
   - Submit a file which holds your predictions for the **test** data (should look like sample.csv)
   - Your performance then appears on a public leaderboard
   - Depending on the task, your number of submissions is limited (e.g. 10/day and 100 in total)
   - A submission has to be **handed-in** in order to be graded **(by every group member!)**
   - When ‘handing in’ you have to give a brief explanation of your methods.
     - Task on overview page will turn **green** as soon as it has been handed in successfully
     - You are able to change handed-in submissions before task deadline (**time is in UTC**)

Important points

⚠ Make sure that you properly hand in the task, otherwise you may obtain zero points for this task.

FREQUENTLY ASKED QUESTIONS

WHICH PROGRAMMING LANGUAGE AM I SUPPOSED TO USE? WHAT TOOLS AM I ALLOWED TO USE?

You are free to choose any programming language and use any software library.

CAN YOU HELP ME SOLVE THE TASK? CAN YOU GIVE ME A HINT?

As the tasks are a graded part of the class, **we cannot help you solve them**. However, we will try to address general aspects during the project tutorials. Moreover, feel free to ask general questions about the course material during or after the exercise sessions.

CAN YOU GIVE ME A DEADLINE EXTENSION?

⚠ We can not grant deadline extensions, except in extraordinary cases (e.g. military service). However, we will require official confirmation of your problem (e.g. certificate of illness).

CAN I POST ON MOODLE AS SOON AS HAVE A QUESTION?

This is highly discouraged. Instead,

- Read the details of the task thoroughly.
- Review the frequently asked questions.
- If there is another team that solved the task, try again.
- Discuss with your team-mates.

If you still consider that you should contact the TAs, you can post a **private** question on Moodle. Remember that collaboration with other teams beyond (general discussions) is prohibited.

ARE I ALLOWED TO USE IDEAS FROM PUBLISHED PAPERS AND USE THEIR CODE?

⚠ You are allowed to search for any material that presents how to train models for related tasks (e.g. articles in conferences, repositories, etc...). However, you must re-implement the code by yourself. You are **NOT** allowed to copy code.

WHEN WILL I RECEIVE THE PRIVATE SCORES? AND THE PROJECT GRADES?

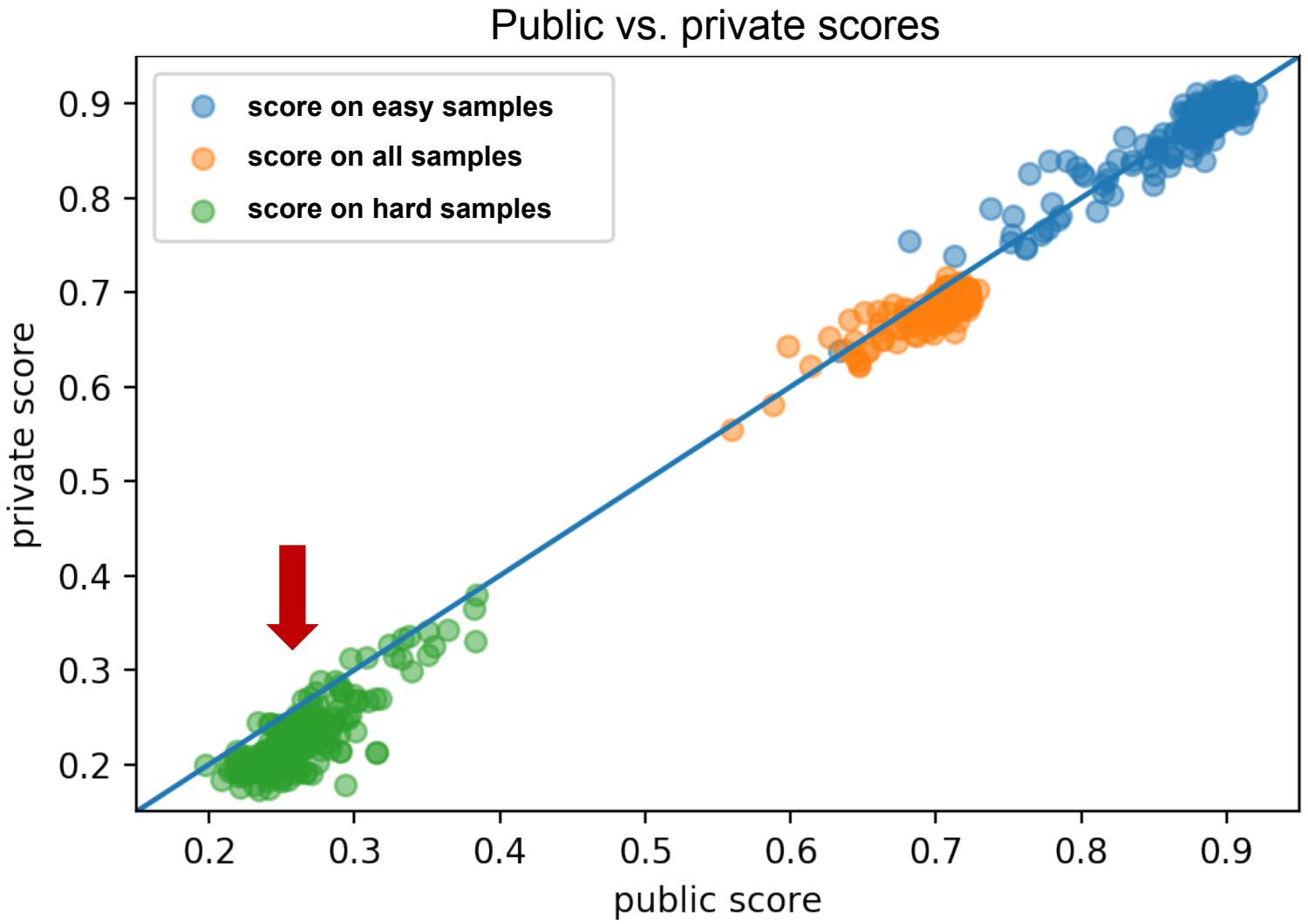
We will publish the private scores as soon as the task closes.

Task grading

- There are two leaderboards
  - Public: visible as soon as the task opens (~50% of test-data used for ranking)
  - Private: visible after the task closes (remaining test-data used for ranking)
  - In order to take the exam, you have to pass the **passing baseline** on the **public** leaderboard of at least two tasks.
  - However, your overall-project score (which makes up 30% of your final grade) is determined **only** through the performance of your best two tasks on the **private** leaderboard.
    - Note: If you are allowed to take the exam your project grade will at least be 4.0.

- Be careful not to overfit on the test-data used for the public leaderboard
  - Do not use your public score as the sole metric for your model's performance
  - Use cross-validation and/or other validation methods

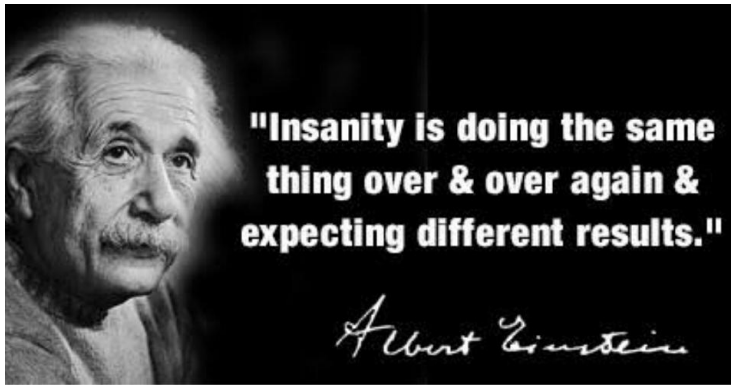
Don’t overfit to the “hard” samples on the public set!

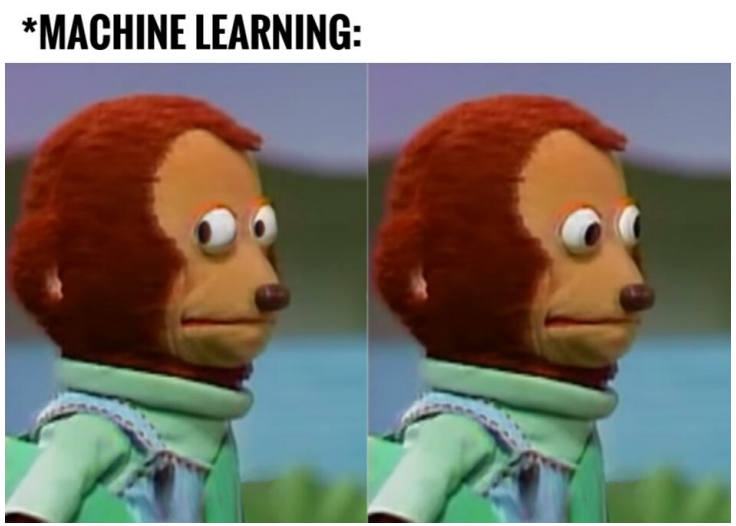


Live walk through

https://aml.ise.inf.ethz.ch/

Questions


"Insanity is doing the same thing over & over again & expecting different results."
Albert Einstein


*MACHINE LEARNING:


How to confuse machine learning: