Exam information

(notes by **Simone Montali**)

We can perform an **oral examination** or a **project**.

Square kilometer array

Largest radio telescope ever built. Huge amount of data, that will have to be processed when this telescope is set up. Tbe project consists in processing hi-res images, with information collected at 3 different frequencies. The aim is identifying astronomic sources and their properties (3 main categories to distniguish between and try to derive some props).

We'll have to deploy a neural net and compare it with different techniques.

There's a paper-survey collecting info on the entries.

Deep Comedy 2.0

Here, we have to generate poetry in Dante's style, using the divine comedy for training. Last year, no solutions were satisfactory. We have to work on the point of view of syllabification: 11 syllables are the only way.

Molecular property prediction

The non-trivial part is the sequence.It's a graph structure, and it is highly probable that the sequence of atmos composing the molecules, and the shapes. This is the typical example of information that **should be processed as a graph**. For example, social networks behave in this way.

This is the website, BACE is the dataset we're interested in.

There are libraries (`RDTKIT`) that allow us to process the raw data and get graphs.

Food recognition challenge

This is an image segmentation aiming to recognize individual food in an image. The dataset contains 24120 images along

Flatland challenge

This is a multi-agent behicle rescheduling problem, to be solved with RL.