

**Título/Title:**

ALMA serendipitous detections

**Orientador/Supervisor:**

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**Local do Estágio/Host Place:**

IA-Lisboa (Observatório Astronómico de Lisboa, Tapada da Ajuda)

**Descrição/Description:**

The amount of data processed by modern observatories has increased by tenfold in the last decade and encountered in many cases a lack of resources and tools to properly analyze these data. One of the main contributors to this increase in data flow has been the Atacama Large Millimeter Array (ALMA), a revolutionary telescope which is reaching now full capabilities. The ALMA science archive contains already tens of thousands of processed observations and offers the scientific community the promise of many serendipitous discoveries not envisaged in individual proposals. The nature of the ALMA observations make the search and characterization of these serendipitous sources difficult but, can potentially provide powerful insight into the nature and evolution of the cold Universe.

**GOALS:**

1. The main student's goal would be to understand the underlying structure of the ALMA data to be able to test and adapt different known methodologies for identifying serendipitous detections in collaboration with PACE members;
2. Test whether the application of -supervised or unsupervised- Deep-Learning Techniques could potentially be implemented in order to increase the success rate of the identifications.

**Requisitos/Requirements:**

Some programming knowledge (e.g. Python) would be beneficial but not strictly required.