MACHINE LEARNING FOR ASTROPHYSICS
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Star- and planet formation caught-in-the-act

Tuesday, 31 May 2022 14:30 (3 minutes)

Since the beginning of the last decade the analysis of huge amounts of data is a new challenge that researchers in general have to cope with. This is also true for astronomers and luckily the number of infrared facilities and the amount of data collected by them increased several order of magnitudes, leading us to new discoveries through data mining and knowledge discovery in databases using modern statistical methods, supervised and unsupervised machine learning. On-going surveys in other domains of the electromagnetic spectrum are providing us with a data avalanche at the moment and allow us to catch phenomena that we have never seen before. I present the project NEMESIS (Novel Evolutionary Model for the Early stages of Stars with Intelligent Systems) that aims to build the largest panchromatic dataset of Young Stellar Objects (YSOs) and our methods that are efficiently used in YSO discoveries in large catalogues based on data from IR space telescopes like AKARI, WISE and Herschel and that help to identify eruptive young stars in present and future alert systems like the Gaia Photometric Science Alerts System. NEMESIS has also the aim to revisit the YSO evolutionary timescales and identify evolutionary stages that needs to be analysed in great details. YSOs in these rare stages and alerts can be potential targets for the JWST and future high spatial and/or temporal resolution facilities and can provide details about star and planet formation that we had no chance to capture before.

Main Topic

Supervised/Unsupervised/Semi-supervised Learning

Secondary Topic

Time series analysis, transients

Participation mode

In person

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Session Classification: Poster Session Day 2