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Type: Talk

Machine Learning Frameworks for next-generation of Cosmology Surveys

Monday 12 December 2022 16:15 (15 minutes)

In this talk, I will show applications of the state-of-the-art supervised, un-supervised and weakly-supervised machine learning (ML) algorithms to solve problems in cosmology and astronomy. I will show ML-based galaxy clusters' mass modeling to capture the Sunyaev Zel'dovich (SZE) and Cosmic Microwave Background (CMB) lensing effects, using convolutional neural networks (CNNs). I will show an application of self-organizing maps (SOMs) to discover new radio sources in the Australian Square Kilometre Pathfinder surveys (ASKAP). I will also present state-of-the-art weakly supervised ML methods to classify and segment radio galaxies on cosmological scales. All these methods are domain agnostic and can be easily applied to other fields of physics.

Session

Astroparticle Physics and Cosmology

Primary author: GUPTA, Nikhel (CSIRO Space & Astronomy)

Presenter: GUPTA, Nikhel (CSIRO Space & Astronomy)

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