

Reimagining large spectroscopic data with unsupervised machine learning generative models

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Modern-day machine learning generative models allow us to directly model the distribution of the observed spectroscopic data, even when the stellar labels are absent. In recent years, we have seen the explosion of studies in terms of supervised machine learning. However, the exploration of unsupervised generative models in stellar spectroscopy is, unfortunately, lagging behind. In this talk, I will discuss various unsupervised machine learning methods, including generative models and normalizing flows and their pros and cons. I will demonstrate how unsupervised generative models can uncover missing atomic features, auto-calibrate imperfect models, and detect outlier spectra without needing a predefined training set with stellar labels.

Type

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Primary author: TING, Yuan-Sen (Australian National University)

Presenter: TING, Yuan-Sen (Australian National University)

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