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A multi-modal approach for the classification of multimessenger events involving gravitational waves and CTAO data

The first multimessenger observation involving gravitational waves, GW170817, demonstrated the essential role of combining information from different messengers and from the entire electromagnetic spectrum to achieve a comprehensive understanding of astrophysical phenomena. In the coming years, the Cherenkov Telescope Array Observatory (CTAO) —the largest and most sensitive ground-based very-high-energy gamma-ray facility —will begin operations, and is expected to observe a substantial number of events jointly with the gravitational-wave detector network. This motivates the development of fast and robust analysis strategies capable of promptly extracting data features, including the ability to distinguish genuine multimessenger events from coincidental detections.
In this work, I present a first implementation of a multimodal machine-learning (MMML) approach that combines CTAO and gravitational-wave data to classify candidate multimessenger events.

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