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Perspectives for CCSNe detection with the next generation of gravitational wave detectors

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Core collapse supernovae are among the most energetic explosions in the modern Universe and one of the long-standing riddles of stellar astrophysics. The detection of a gravitational wave signal coming from a core collapse supernovae would be extremely interesting, due to the fact that it would give us the chance to probe the core dynamics of a dying massive star and, eventually, enlighten the mechanism driving supernova explosion.
A new method based on machine learning will be presented. The method takes advantage of the most common and peculiar features of the gravitational wave signal emitted in the core collapse supernova and it is based on a classification procedure of the time-frequency images of the network data performed by a convolutional neural network.
This contribution reports the resulting perspectives for the next generation of gravitational wave detectors, taking into account different detector configurations among the ones proposed up to the present day.

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