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Towards the next generation of transient gravitational wave searches

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The state-of-the-art of gravitational wave (GW) search techniques for transient signals have been extremely successful, but their sensitivity continues to be hindered by the presence of transient noise artifacts in the detectors, known as glitches. Glitches happen at a rate of 1 per min reducing the amount of scientific data available, as well as masking or mimicking GW signals. Therefore, there is a need for better modeling and inclusion of glitches, as well as improving the robustness of future GW searches. In this presentation we tackle two different challenges employing Machine Learning techniques: firstly we further analyze glitches populations with Generative Adversarial Networks, and secondly we ameliorate glitches in GW searches by analysing pipelines triggers with Gaussian Process classifier.

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