

Deep Learning based acceleration of Gravitational Waves

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In gravitational-wave detectors, regression techniques are applied to remove noise artifacts in order to improve the ability to observe and extract information from astrophysics signals. We present a deep learning-based noise regression method called DeepClean that can subtract linear and non-linear noise in gravitational-wave data from the Advanced LIGO detectors. We also discuss our work toward a new computing model in gravitational-wave data analysis where GPU and FPGA acceleration on machine learning inference can be deployed on an as-a-service basis. We use DeepClean as a use-case for exploring such computing models in order to achieve real-time capabilities and overall flexibility such models provide.

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