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How are the LVK gravitational wave searches doing, and where are they headed?

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During the fourth observing run of the LVK collaboration, we have already seen large improvements in the results produced by the search pipelines in low-latency. We have reached new levels of sensitivity and reliability. In the quest to detect every gravitational wave out there, we are now more ready than ever to participate in the next multimessenger event. During this fourth observing run, we have seen the first glimpse of results from unmodeled or burst searches. As we start getting high-latency offline results, we will begin to explore gravitational waves from new parameter spaces. In the future, we are looking to incorporate precession and higher order modes of gravitational waves in these searches. These advancements will play a crucial role in obtaining a better scientific understanding of some of the biggest mysteries of the universe. In this talk, I will give an overview of the current status and performance of search pipelines, and what the future holds for them.

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