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The SkyLLH framework for IceCube point-source search

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Hypothesis tests based on unbinned log-likelihood (LLH) functions are a common technique used in multi-messenger astronomy, including IceCube's neutrino point-source searches. We present the general Python-based tool "SkyLLH", which provides a modular framework for implementing and executing log-likelihood functions to perform data analyses with multi-messenger astronomy data. Specific SkyLLH framework features for a new and improved time-integrated IceCube point-source analysis are highlighted, including the support for kernel density estimation (KDE) based probability density functions. In addition, the support for a variety of point-source analysis types, such as stacked and time-variable searches, will be presented.

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