## [포AT-06] Application of Artificial Neural Networks to Search for Gravitational-Wave Signals Associated with Short Gamma-Ray Bursts

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We apply a machine learning algorithm, artificial neural network, to the search for gravitational-wave signals associated with short gamma-ray bursts. The multi-dimensional samples consisting of data corresponding to the statistical and physical quantities from the coherent search pipeline are fed into the artificial neural network to distinguish simulated gravitational-wave signals from background noise artifacts. Our result shows that the data classification efficiency at a fixed false alarm probability is improved by the artificial neural network in comparison to the conventional detection statistic. Therefore, this algorithm increases the distance at which a gravitational-wave signal could be observed in coincidence with a gamma-ray burst. We also evaluate the gravitational-wave data within a few seconds of the selected short gamma-ray bursts' event times using the trained networks and obtain the false alarm probability. We suggest that artificial neural network can be a complementary method to the conventional detection statistic for identifying gravitational-wave signals related to the short gamma-ray bursts.

## [포AT-07] Non-linear Correlation Map of Auxiliary Channels using Mutual Information Coefficient

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The study on non-linear correlation between auxiliary channels in LIGO data has been performed by using mutual information coefficient, generating a correlation map.