

Adaptive predictor as trigger mechanism for cosmic ray radio signals corrupted by Gaussian noise

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Adaptive filtering belongs to the realm of learning algorithms, so widely used in our daily life when we hear about machine learning, artificial intelligence, pattern recognition, etc. It is formally defined as a self-designing device with time-varying parameters that are adjusted recursively in accordance with the input data.

The trigger mechanism is known to be a central task in radio detection experiments as it selects among all the voltages traces events that reach the antennas, a cosmic ray induced signal.

In this work, it is presented the efficiency of a trigger mechanism developed using the adaptive predictor filter technique, since its capability is well known in the usage for time series prediction. It is also independent of an external detector, considering only the online temporal series that arrives in the antennas in a simulated data set and Gaussian noise.

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Collaboration

other (fill field below)

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GRAND

Subcategory

Experimental Methods & Instrumentation

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