

Sparse Time Series Representations for Low Latency Applications

Time series data containing signal features of interest and various periodic and aperiodic noise sources are ubiquitous in HEP. Often, signal reconstruction methods depend on being able to model and reconstruct signals from noise that may be complex and from various sources such as instrumentation or certain backgrounds. We present an initial systematic study of generating the appropriate basis to represent the weight matrices of time series auto-encoders. We compare across architectures the sparsity we may gain from a change of basis of the weight matrices of the auto-encoder network. Such studies have ties to efficient time series encodings, and approaches that derive an analytic form for attention for different time series representations.

Focus areas

HEP

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