

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Jet Quenching: A Machine Learning Approach LIHAN LIU, Vanderbilt Univ — Recent study has shown success in measuring the substructure of jets which cast lights on the exploration of jet quenching phenomenon. Its believed that jets interact with the hot and dense medium, known as quark gluon plasma (QGP), which leads to both energy lost and modifications on jet substructure. Modifications on jet substructure variables reflect quenching effect. In my study, sequential variables are extracted from jet clustering history which are then used to train a Long Short-term Memory (LSTM) neural network. The LSTM neural network is a special type of Recurrent Neural Network (RNN) that learns on sequential data. Supervised machine learning strategy is performed and a well-trained neural network is able to identify quenched jets. My study has shown that jet clustering history and substructure variables imply quenching effect. It also shows the LSTM neural network is very promising in the study of jet quenching phenomenon.

Lihan Liu
Vanderbilt Univ

Date submitted: 08 Jan 2021

Electronic form version 1.4